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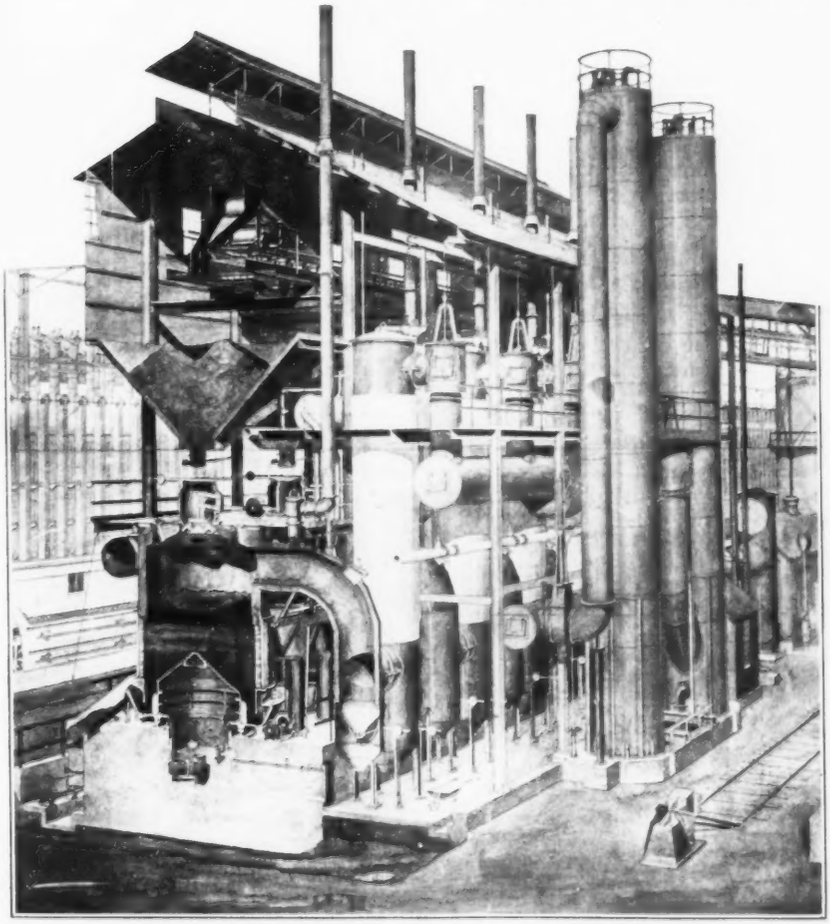
KOPPERS-KERPLEY
GAS PRODUCERS



The Koppers Company

is building ten producers of this type — six for the Seaboard By-Product Coke Co. at Jersey City and four for the Camden Coke Co. at Camden. These producers will furnish gas for heating the KOPPERS COMBINATION COKE AND GAS OVENS at these plants, releasing all of the coke oven gas for distribution.

THE KOPPERS COMPANY
PITTSBURGH PA.

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Belgian-American Coke Ovens Corporation

THE BELGIAN-AMERICAN COKE OVENS CORPORATION has been recently organized as a United States Company. It has acquired all the patents and rights in the United States and Canada of the Franco-Belgian Coke Ovens Corporation of Brussels (Belgium) for the construction of the several types of Piette System By-product Coke Ovens and Recovery Plants.—

More than 1500 Piette ovens have been built and are in operation in several countries in Europe. Previous to the organization of the Belgian American Coke Ovens Corporation, a demonstration battery of Piette ovens has been erected at the coke station of the Laclede Gas Light Co., St. Louis, Mo., and is being successfully operated by the latter company after very minute tests and measurements of yields were made during thirty consecutive days.

Inspection of said demonstration battery is invited and complete information on the remarkable yields shown by same will be supplied on application.

The main characteristics of the Piette Ovens are:

The ovens are of the horizontal type with vertical flues, transverse regenerators and reversing arrangement. The construction is the simplest there is and the shape bricks are less numerous than anywhere else. The maximum of stability is attained by building the ovens proper on an absolutely rigid monolithic bloc.

The method of feeding the heating gas by regulation tuyeres enables a distribution at every point of the oven walls of the exact amount of gas required for a perfect coking.

The regulation sections for the control of the gaseous currents are calculated before construction and exclude the need of numerous dampers and sliding bricks.

The simplicity of the regulation has been exceeded nowhere.

The checkerworks of the regenerators situated in the longitudinal galleries are crossed transversely by either the waste gases or the air, securing the equalization of the temperature in the whole battery without preventing the isolation of any one oven in case of stoppage.

The arrangement of the galleries in the foundations realizes a superior cooling of the waste gas by the incoming combustion air besides reducing the loss of heat by radiation.

The BELGIAN-AMERICAN COKE OVENS CORPORATION is prepared to contract for the building of Piette By-Product Recovery Coke Ovens, with or without recovery of heat, also for plants for condensation and distillation of tar, production of sulphate of ammonia or concentrated liquor, recovery of benzol and carbolic acid, manufacturing of pure products: volatile alkali, benzene, toluene, xylene, naphthalene, phenol.

Offices: 686 East Catalan Street, St. Louis, Mo.
25 Broad Street, New York, N. Y.

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Fire Causes and Prevention

Elimination of Conditions that Are Likely to Cause Conflagrations

By Engineering Department, National Safety Council

The loss caused by fire in the United States has been increasing steadily in recent years, and is now estimated to have reached the enormous total of $300,000,000. The property loss every year is approximately three times the annual production of gold and silver. At least two-thirds of this property loss and of the attendant loss of life is preventable.

The prevention of fire depends upon the elimination of conditions which are likely to cause fire. Only common fire causes — those likely to be met with in any manufacturing plant will be dealt with and these will be considered under the following main divisions:

Power generation.
Power transmission (mechanical).
Electricity.
Heating apparatus.
Gases.
Oils, paints, and other inflammable liquids.
Housekeeping.
Matches and smoking.

It is just the application of common sense that is suggested in this article. We are all familiar with the careless individual who "didn't think," but if these rules are followed out plants can be made almost foolproof. Almost, we said.—Editor.

Power Generation

Comparatively few fires originate within boiler rooms except from some easily remedied cause, such as piles of refuse, hot ashes in wooden barrels, and the like. Boiler rooms are ordinarily constructed throughout of fireproof material and, in the case of high-pressure boilers, usually placed in a separate building away from the main plant buildings.

It is inadvisable to place wooden boards or wooden foot walks over boiler settings, or in fact, any construction of wood near the boilers. Foot walks and stairs or ladders for access to them should be of steel construction. If boiler rooms are kept clean and the accumulation of rubbish and inflammable material prevented, there is not much chance of fire starting.

Burning Refuse

Wherever refuse, sweepings, and waste, such as trimmings and lint, is burned under boilers, it should be burned promptly when received and not permitted to remain stored in the boiler room. There is danger in mixing such waste with coal, even in small quantities, unless it is to be burned immediately. If such material is stored, it should be placed in a fireproof bin or vault outside of the boiler room proper.

Fire often starts in soft coal storage, therefore it is not advisable to store coal against wooden walls, nor in quantities inside of buildings and only an amount sufficient for immediate needs kept in boiler room, and this not piled near the boilers. Ventilating tunnels, of metal, placed at intervals of 15 to 20 ft. have been suggested to prevent fire starting in coal storage piles. Where stokers are used, it is, of course, necessary to store a supply of coal in hoppers over the stokers. This is kept in motion so that there is little danger of combustion starting.

Ashes

Only metal containers should be used for the removal of ashes, and the ashes should be kept in metal bins or piled, preferably on a concrete floor. The ash pile should not be adjacent to wooden structures or other inflammable material. The throwing of waste and refuse matter into ash piles, or when removing them from boiler houses often leads to fire. Such material may become ignited from heat in the ashes and a fire may result.

Boiler Stacks

Occasionally a fire starts around stacks which are carried through wooden roofs. When stacks must be taken through wooden roofs, liberal clearance should be allowed.

Steampipes should never be in contact with wood work. The heat from such pipes is apt to ignite the wood. Fires often result when waste or rags are left

lying on hot portions of power-house machinery. A special place should be provided for keeping such material; a table for oil cans and tools and a suitable container with elevated legs and a spring cover for waste. Lint and waste may accumulate in fly-wheel pits and ignite spontaneously or possibly from a lighted match or cigarette stump thrown into the pit. There should be means for cleaning fly-wheel pits so that refuse will not accumulate in them.

Gas Engines

The National Board of Fire Underwriters has issued complete rules for the construction and installation of gasoline, kerosene, and gas engines, and these should be consulted where such apparatus is used. Care should be taken that the exhaust pipe from each engine is muffled and that no wood or combustible partition, is near the exhaust. Where exhaust pipe passes through combustible partition, the woodwork must be protected. This may be done by providing a double thimble made of two concentric rings of sheet metal with at least one inch air space between and with outer ring covered with asbestos, or else a casing of solid masonry. Ventilation through the opening is essential.

Shafting

The principal hazard from power transmission is that of overheated shaft bearings; serious fires have frequently resulted from this cause. All shaft lines should be carefully installed and maintained in a good condition. Shafting out of line quickly causes overheated bearings. There is danger also when any material becomes wound about the shaft, as it may rub against adjacent parts of structure. The hangers and bearings should preferably not be near woodwork. Roller or ball bearings are desirable, but where these are not used self-oiling bearings are recommended Frequent inspection should be provided beneath all bearings, and these should be emptied frequently to prevent oil dripping on the floor or inflammable material below.

Belts

Probably the next most important cause of fire in the transmission of power is that of belts rubbing against woodwork. Wherever belts pass through wooden floors, walls, or partitions, ample clearance should be provided so that the belt will not rub against the woodwork. It is well to limit the play of belt by some form of metal roller. Metal belt shifters are recommended instead of wooden ones; if wood is used that portion of shifter which comes in contact with the belt should be protected by metal.

Static Electricity

Static electricity is the result of friction caused by the rubbing of the belt against the pulleys. To remove the static electricity from moving parts three methods have been used with satisfaction:

A glycerine belt dressing.
Grounding of hangers and shafting
Use of copper comb collector and grounding.

In locations where inflammable vapors or dusts are present and static electricity would create a considerable fire hazard, it is advisable not to install belt drives at all. Drives by shafting through partitions or direct motor drive properly inclosed are preferable.

Electricity

Electric arcs and overheating of electric equipment are the causes of many electric fires. The principal causes of electric arcs are switches with poor contact points, switches exposed to metal contact or to a ground, poor contact in splices and connections, worn insulation, moisture, crossed wires, etc.

Switches

Switch points should not be ragged and loose but should provide a smooth, tight, contact. Inclosed switches only are recommended for use, both because of the danger of arcing, and because the inclosing case prevents accidental contact of objects, or an operator, with live parts.

Circuits

Improperly made joints (splices) in electrical circuits are a common cause of fires. Joints should be soldered and taped so as to provide a permanent, secure contact between the wires for the passing of current. It is advisable, also, where feasible, that electric circuits be installed in conduit for protection against mechanical injury, and from moisture and fumes.

Temporary Wiring

Frequently temporary wiring is put up to be used for a short time and this is sometimes permitted to remain for permanent use. Temporary wiring should be installed in a safe manner and should not be allowed to become permanent. Dead wiring should be removed because of the possibility of its being connected up after a period of disuse when it is likely to have deteriorated.

Overheating

The principal cause of overheating of electrical equipment is overloading. Fuses and circuit breakers are the safety valves of electrical systems: all circuits should be so protected. Sometimes copper wire is carelessly inserted in place of a fuse, thus permitting too heavy a current to pass through the circuit, with serious results. The use of too large fuses is a frequent cause of fire, and it is very necessary that the fuse be of a size suitable for the load of the circuit. Fuses in which the fuse wires are inclosed are recommended.

Motors and Generators

All motors and generators should be installed in a dry place and should not be exposed to corrosive fumes, inflammable gases, or flying material such as dust and lint. Sparks from the commutator may ignite gases or dust, therefore in hazardous locations it is advisable that motors be entirely inclosed (air may be supplied from an outside source and dis-

charged again to the outside) or else be installed outside of the room and the shaft extended through wall. Proper lubrication of motor and generator bearings is, of course, essential to prevent overheating and possible fire.

Portable and Pendant Cords

Portable and pendant lamps are frequent causes of fire because of defective insulation. Sometimes the cords have been hung on nails or other metal objects and through continual vibration are worn until contact is made, and a short circuit results. Ordinary lamp cords are often used in a wet place and become soaked with water, thus causing a short circuit. Rubber insulation deteriorates with time, and the cord must be renewed. Portable lamps should be used only when absolutely required, such as for purposes of cleaning out boilers, entering manholes, and the like, and then only heavy reinforced cords should be employed so as to withstand wear and prevent short circuiting. Water-proof cords and sockets are necessary where exposed to dampness Pendant lamps (drop cords) are not advisable and should not be used when a permanent, rigid fixture can be installed. Wherever pendant lamps are used, the cord should hang vertically from the supporting fixture and never be hung over nails, machine parts or other objects.

Defective Flues

Probably the most frequent cause of fire from heating apparatus and loose joints or dust holes in smoke pipes are examples of such defects. These are responsible for practically all fires which originate in walls or in partitions around smoke stacks and flues. All chimneys should be thoroughly inspected and cleaned at least once each year. Smoke pipes should be carefully inspected in the fall before the first fire is built, to make sure that the joints are tight and that rust has not eaten away the pipe so that it is unsafe. Occasional inspection thereafter is also advisable.

Protection of Woodwork

Woodwork near furnaces, stoves, and smoke pipes should be protected either by covering the heating apparatus or pipe, or by interposing a metal or asbestos sheet placed about three inches from the woodwork. The space behind such a shield should always be kept clear to permit free air circulation.

No metal smoke pipe should be placed nearer to any combustible wall or partition than the diameter of the pipe, nor nearer any combustible ceiling than one and a half times the diameter, unless such wall partition or ceiling is protected by asbestos board or sheet metal.

Overheated Stoves

It is not infrequent in many industrial plants to find small offices in various departments heated by coal or wood stoves. These offices are apt to accumulate rubbish and papers, including various shop forms, and often present serious fire hazards because of their wooden construction, the inflammable material in them, and because they are frequently used as a sort of shop smoking room. Fires occasionally result in such rooms when the stoves are filled with fuel, and all persons leave the room temporarily. The overheated stove sets the surrounding woodwork on fire, or the red hot smoke pipe ignites the wall or ceiling.

Forges and Furnaces

In practically all industrial plants will be found various types of forges, furnaces, ovens, kilns, retorts, and the like, which are heated by gas, oil, coal or wood, and frequently by electricity or steam. Certain fundamental principles are important to guard against fire in the use of such apparatus.

It should not be installed near woodwork or other inflammable material.

Where gases and liquids are used for fuel, pipes instead of tubing should be used for piping the fuel. The piping (for liquids) should be so arranged that the fuel will drain to the supply tank in case of a break in the pipe.

A dependable shut-off valve should be located at a safe distance from the furnace.

Where wood, coal or coke is used for fuel, care is necessary in the disposal of the ashes.

For electrically heated apparatus, a light indicating when the current is on is advisable.

Location of Fixtures

Movable gas jets are especially inadvisable because they may be swung against curtains or woodwork and ignite them; stationary fixtures are therefore recommended. If movable fixtures are used, suitable stops should be provided to prevent the fixture from being swung against inflammable material.

Connections

The use of rubber tubing on connections to gas heaters, stoves, furnaces, and other such equipment is not advisable. Tubing deteriorates with age, dries out and cracks so that a leak is apt to develop. The tubing may also be pulled from the connection at either end, creating the possibility of a fire or of asphyxiation of persons present. Where it is necessary that tubing be used it should be of the best quality and should be securely fastened to fittings at both ends. Flexible metal-covered tubing is preferable. A shut-off valve should be provided only on the gas supply pipe so that no gas will be left in the tubing when valve is closed.

Leaks in piping and fixtures are also likely to cause fire or explosion and it is therefore important that such fixtures be installed only by competent workmen. Leaks, of course, should not be looked for with a lighted match or other open flame; gas-proof electric pocket flash lamps are desirable.

Oils, Paints, and Other Inflammable Liquids

Oils, paints and other inflammable liquids, wherever used, constitute a very important fire hazard. These substances are more to be feared because of the danger of spontaneous combustion of materials such as rags, waste, burlap and clothing, in which

(*Continued on page* 232.)

Natural Gas Vs. Electricity

How a Privately Owned Company Competes with an M. O. Plant

Can 80-cent natural gas be successfully marketed in competition with electricity at 2 cents per kilowatt for fuel? This is the question that is finding a practical solution in Kansas City, Kan., where the municipally owned electric light plant is selling the current and the Wyandotte Gas Company is selling the gas.

The fact that the gas is being so sold and that the number of consumers is on the increase demonstrates that it can be. Yet a few years ago, when the light company announced that it would sell electricity at the rate of 2 cents for domestic purposes, it was freely predicted that in a short time practically all the householders would be using it for domestic cooking. The story of the contest is about as follows:

Artificial gas companies that are faced with keen competition by electric companies will find this article a source of inspiration for it shows what can be done under adverse circumstances. We consider this a real accomplishment.—Editor.

The personal element enters into this case, as it so often does. 'Way back in 1886 W. H. McKenzie became manager of the Wyandotte Gas Company. It was called by that name because the town was originally called Wyandotte instead of Kansas City, Kan. At the time the company had 350 customers and sold artificial gas. Under his management the business developed, and he has been in charge of the company's business there ever since except for a few years prior to 1905, when he was in Omaha. When natural gas was introduced he was called back to take charge of its introduction. The company's business has continued to prosper under his direction, and the last report issued shows nearly 1,900 consumers at the present time. And the number continues to increase.

Some idea of what has been overcome may be gained from the story of the activities of the light plant. It was established in 1912 as a municipally owned plant, when bonds to the amount of $350,000 were voted. Since then the amount has been added to, until there is now invested in the plant $1,500,000, the proceeds of bonds voted by the people, besides earnings from the plant to the amount of $421,000. There has been recently voted, in addition, $750,000 to make extensions to the plant, but this has not yet been expended. The plant has been a money earner from the beginning, and has not only paid for the interest on the bonds but has reduced the principal $183,000, and had on hand on Jan. 1 $56,000 in cash. The service has been fairly good and the good will of the public has been maintained. The plant at present is doing around a million dollars of business a year. It serves the city in its lighting and, with the exception of a few plants which buy power from it, sells its product only for light and for domestic purposes.

The rate for domestic purposes—its architectural rate—is 6 cents per kilowatt for the first four kilowatts used per room, and 2 cents per kilowatt for all additional kilowatts used. Thus, in a six-room house the rate would be six times four, 24 cents a room, or $1.44 a month at the high rate, and then 2 cents for the number used above that amount for all and for any purpose whatsoever. The theory of the management is that the profits on the 6-cent business will pay the expenses and upkeep of the plant, and the 2-cent electricity will be furnished practically at the cost of production after all overhead is taken care of. It is also estimated that the 6-cent service will just about cover the lighting and that the 2-cent service will be practically all used for cooking and other domestic purposes. So the issue is fairly joined, and the contest is between 2-cent electricity and 80-cent gas for domestic purposes, other than lighting. The chief clerk of the municipal light plant reports that the comparative cost in the cases that have come under his observation is in favor of the electricity, but other factors have entered into the situation, so that there are comparatively few families using electricity as a fuel for cooking, even at the low rate. The plant has been handicapped in the introduction of the new appliance, because it has not been allowed to handle in a commercial way the appliances such as electric stoves and cookers. The local merchants, thinking the trade in them would be large, got out injunctions against the plant to prevent it from engaging in the merchandising of other things than electricity. The result is that there has not been the service and advertising that there might have otherwise been.

The gas company has been quick to take advantage of all the shortcomings of the municipal plant and, without antagonizing it, has continued to hold practically all its former customers for gas as a fuel and to add many new ones.

Service, Conservation, Harmony

The campaign which has resulted thus successfully

has run along the lines of the three watchwords of Mr. McKenzie, the manager: Service, Conservation, Harmony.

Mr. McKenzie believes absolutely in the motto which is largely displayed in his town: "He who serves best, profits most." A large part of his time is spent in studying how the service of the company might be improved. The records of the meters are compared each month with the readings of the month before, and if there is shown to be an abnormal increase the company does not wait to be notified by the complaining customer but before the bill reaches him there is an expert representative of the company at the house to investigate. If the fault is in any way that of the company the bill is revised and the customer never hears of the high bill. If it is the fault of the customer or, as it is in most cases, the excess consumption of poor equipment, the opportunity is opened for the sale of new appliances which are of the distinctive gas-saving patterns and which will in the course of the year often pay for themselves in the gas saved. Whatever may be the trouble, the representative is instructed to do all in his power to correct the defect, to conserve the gas and gain the good-will of the customer.

In order to extend the service rendered the customers the company maintains a demonstration room at its office and a force to explain not only the superiority of the up-to-date gas appliances over the old styles but also to show customers how to use and regulate all styles so as to secure the largest amount of service from the equipment in use. The service department makes no charge to the customer, and the merchandising department is maintained primarily to insure that the customer may have the privilege of purchasing gas-saving appliances at reasonable rates rather than making a profit to the company.

The second watchword is Conservation. That this is more than a watchword will be realized when it is stated that although the number of customers has increased, the actual amount of gas consumed has decreased. The receipts of the company for 1921 have been so far less than in the corresponding months of 1920. In addition to that, there has been a determined effort to save the gas which has been lost in the past through defective mains. The company is now spending $100,000 on this saving alone in the replacement of new mains.

The amount of natural gas in this field is limited and the company is saving all it can. It is unable to serve its consumers with gas for furnaces, simply because it has not the gas to sell. It is therefore all the more interested in saving the gas it has; and by doing it the company is the more able to compete for fuel customers in the field. The whole campaign for conservation, or gas saving, is based on the same conditions; and while it reduces the amount of cash income from customers for the present, it makes an increased market for gas for the years to come and prepares the way for the sale of manufactured gas—which the company will have to sell when the supply of natural gas is exhausted.

Harmony, however, seems to be the strong point with Manager McKenzie. He sees to it that, so far as possible, there is no conflict. He was hardly willing to admit there was a business conflict between 80-cent gas and 2-cent electricity. He was glad to state—and his statement was fully confirmed—that there had always existed the most cordial relations between the management of the gas company and the managers of the municipal plant. He never has a word to say against the city institution, and when a customer of his states that he is thinking of buying an electric cooker the most that he will say is that it is due to the customer, as well as to the gas company, that a careful investigation shall be made The result naturally is that the customer goes and makes the investigation, and usually comes back and buys a gas range. The very fact that confidence is expressed in the outcome of the investigation is half the battle in winning the customer to gas.

Co-operation with Appliance Dealers

Then, there is the harmony between the company and the dealers who handle gas appliances. When it was necessary for the company to put in a line of ranges and other appliances to use in its demonstrations of gas saving, Mr. McKenzie made a visit to each local dealer and explained the situation to him, and informed him as to the makes of stoves which came up to the standard and advised him to put in a stock of one of the makes. He assured the merchant that the company would maintain prices, and offered co-operation in marketing the appliances. The result is that he won the good-will of every merchant and made a booster of each one of them for gas as a fuel. In effect, he made every one of these merchants an agent of the gas company, for when they sell gas-using appliances they are providing for the consumption of gas.

But Manager McKenzie's chief aim is to maintain harmony with the gas-consuming public. He believes absolutely in the value of the satisfied customer to his company and does everything possible to keep them all satisfied. He has a theory that there is no great trick in hiring expert accountants and managers of departments, but that there are not so many people who are able to handle the public. It is on this basis that he has his desk not back in some secluded apartment which is almost impossible to reach but, on the other hand, out in the open of the main room and right between the doors through which every customer must pass as he enters and as he goes out. He is personally acquainted with nearly if not every one of them—he has grown up with the town, so to speak—and every one of them brings his troubles to the manager. Of course, he immediately turns it over to someone else to take care of; but the ditch-digger, or the washerwoman, or the timid girl wife, or the big business man has each a kindlier feeling for the "soulless corporation" whose manager is so cordially interested in their troubles and who is so appreciative of their custom when they come in to pay a monthly gas bill or to buy the latest thing in a gas range.

It is because of this cordial relation that most of his customers ask his advice before they buy the electric cooker, and it is because of his disinterested advice to them to investigate and use their own judgment that many come back to him and buy a gas range from him.

But whatever else Manager McKenzie is, he is a gasman. He is thoroughly convinced that gas is the best fuel for the housewife, AT ANY PRICE, and he can tell you why—and a number of whys—it is to the interest of anyone who has charge of a house and the preparation of meals and the cooking and preserving of foods to buy a high-grade gas range to do it with. He grows eloquent when he gets started on the subject; and all it takes to start him is the casual inquiry of a prospective customer as to the merits of an appliance that can be made to consume gas.

lying on hot portions of power-house machinery. A special place should be provided for keeping such material; a table for oil cans and tools and a suitable container with elevated legs and a spring cover for waste. Lint and waste may accumulate in fly-wheel pits and ignite spontaneously or possibly from a lighted match or cigarette stump thrown into the pit. There should be means for cleaning fly-wheel pits so that refuse will not accumulate in them.

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Portable and pendant lamps are frequent causes of fire because of defective insulation. Sometimes the cords have been hung on nails or other metal objects and through continual vibration are worn until contact is made, and a short circuit results. Ordinary lamp cords are often used in a wet place and become soaked with water, thus causing a short circuit. Rubber insulation deteriorates with time, and the cord must be renewed. Portable lamps should be used only when absolutely required, such as for purposes of cleaning out boilers, entering manholes, and the like, and then only heavy reinforced cords should be employed so as to withstand wear and prevent short circuiting. Water-proof cords and sockets are necessary where exposed to dampness Pendant lamps (drop cords) are not advisable and should not be used when a permanent, rigid fixture can be installed. Wherever pendant lamps are used, the cord should hang vertically from the supporting fixture and never be hung over nails, machine parts or other objects.

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Probably the most frequent cause of fire from heating apparatus and loose joints or dust holes in smoke pipes are examples of such defects. These are responsible for practically all fires which originate in walls or in partitions around smoke stacks and flues. All chimneys should be thoroughly inspected and cleaned at least once each year. Smoke pipes should be carefully inspected in the fall before the first fire is built, to make sure that the joints are tight and that rust has not eaten away the pipe so that it is unsafe. Occasional inspection thereafter is also advisable.

Protection of Woodwork

Woodwork near furnaces, stoves, and smoke pipes should be protected either by covering the heating apparatus or pipe, or by interposing a metal or asbestos sheet placed about three inches from the woodwork. The space behind such a shield should always be kept clear to permit free air circulation.

No metal smoke pipe should be placed nearer to any combustible wall or partition than the diameter of the pipe, nor nearer any combustible ceiling than one and a half times the diameter, unless such wall partition or ceiling is protected by asbestos board or sheet metal.

Overheated Stoves

It is not infrequent in many industrial plants to find small offices in various departments heated by coal or wood stoves. These offices are apt to accumulate rubbish and papers, including various shop forms, and often present serious fire hazards because of their wooden construction, the inflammable material in them and because they are frequently used as a sort of shop smoking room. Fires occasionally result in such rooms when the stoves are filled with fuel, and all persons leave the room temporarily. The overheated stove sets the surrounding woodwork on fire, or the red hot smoke pipe ignites the wall or ceiling.

Forges and Furnaces

In practically all industrial plants will be found various types of forges, furnaces, ovens, kilns, retorts, and the like, which are heated by gas, oil, coal or wood, and frequently by electricity or steam. Certain fundamental principles are important to guard against fire in the use of such apparatus.

It should not be installed near woodwork or other inflammable material.

Where gases and liquids are used for fuel, pipes instead of tubing should be used for piping the fuel. The piping (for liquids) should be so arranged that the fuel will drain to the supply tank in case of a break in the pipe.

A dependable shut-off valve should be located at a safe distance from the furnace.

Where wood, coal or coke is used for fuel, care is necessary in the disposal of the ashes.

For electrically heated apparatus, a light indicating when the current is on is advisable.

Location of Fixtures

Movable gas jets are especially inadvisable because they may be swung against curtains or woodwork and ignite them; stationary fixtures are therefore recommended. If movable fixtures are used, suitable stops should be provided to prevent the fixture from being swung against inflammable material.

Connections

The use of rubber tubing on connections to gas heaters, stoves, furnaces, and other such equipment is not advisable. Tubing deteriorates with age, dries out and cracks so that a leak is apt to develop. The tubing may also be pulled from the connection at either end, creating the possibility of a fire or of asphyxiation of persons present. Where it is necessary that tubing be used it should be of the best quality and should be securely fastened to fittings at both ends. Flexible metal-covered tubing is preferable. A shut-off valve should be provided only on the gas supply pipe so that no gas will be left in the tubing when valve is closed.

Leaks in piping and fixtures are also likely to cause fire or explosion and it is therefore important that such fixtures be installed only by competent workmen. Leaks, of course, should not be looked for with a lighted match or other open flame; gas-proof electric pocket flash lamps are desirable.

Oils, Paints, and Other Inflammable Liquids

Oils, paints and other inflammable liquids, wherever used, constitute a very important fire hazard. These substances are more to be feared because of the danger of spontaneous combustion of materials such as rags, waste, burlap and clothing, in which

(*Continued on page* 232.)

Natural Gas Vs. Electricity

How a Privately Owned Company Competes with an M. O. Plant

Can 80-cent natural gas be successfully marketed in competition with electricity at 2 cents per kilowatt for fuel? This is the question that is finding a practical solution in Kansas City, Kan., where the municipally owned electric light plant is selling the current and the Wyandotte Gas Company is selling the gas.

The fact that the gas is being so sold and that the number of consumers is on the increase demonstrates that it can be. Yet a few years ago, when the light company announced that it would sell electricity at the rate of 2 cents for domestic purposes, it was freely predicted that in a short time practically all the householders would be using it for domestic cooking. The story of the contest is about as follows:

Artificial gas companies that are faced with keen competition by electric companies will find this article a source of inspiration for it shows what can be done under adverse circumstances. We consider this a real accomplishment.—Editor.

The personal element enters into this case, as it so often does. 'Way back in 1886 W. H. McKenzie became manager of the Wyandotte Gas Company. It was called by that name because the town was originally called Wyandotte instead of Kansas City, Kan. At the time the company had 350 customers and sold artificial gas. Under his management the business developed, and he has been in charge of the company's business there ever since except for a few years prior to 1905, when he was in Omaha. When natural gas was introduced he was called back to take charge of its introduction. The company's business has continued to prosper under his direction, and the last report issued shows nearly 1,900 consumers at the present time. And the number continues to increase.

Some idea of what has been overcome may be gained from the story of the activities of the light plant. It was established in 1912 as a municipally owned plant, when bonds to the amount of $350,000 were voted. Since then the amount has been added to, until there is now invested in the plant $1,500,000, the proceeds of bonds voted by the people, besides earnings from the plant to the amount of $421,000. There has been recently voted, in addition, $750,000 to make extensions to the plant, but this has not yet been expended. The plant has been a money earner from the beginning, and has not only paid for the interest on the bonds but has reduced the principal $183,000, and had on hand on Jan. 1 $56,000 in cash. The service has been fairly good and the good will of the public has been maintained. The plant at present is doing around a million dollars of business a year. It serves the city in its lighting and, with the exception of a few plants which buy power from it, sells its product only for light and for domestic purposes.

The rate for domestic purposes—its architectural rate—is 6 cents per kilowatt for the first four kilowatts used per room, and 2 cents per kilowatt for all additional kilowatts used. Thus, in a six-room house the rate would be six times four, 24 cents a room, or $1.44 a month at the high rate, and then 2 cents for the number used above that amount for all and for any purpose whatsoever. The theory of the management is that the profits on the 6-cent business will pay the expenses and upkeep of the plant, and the 2-cent electricity will be furnished practically at the cost of production after all overhead is taken care of. It is also estimated that the 6-cent service will just about cover the lighting and that the 2-cent service will be practically all used for cooking and other domestic purposes. So the issue is fairly joined, and the contest is between 2-cent electricity and 80-cent gas for domestic purposes, other than lighting. The chief clerk of the municipal light plant reports that the comparative cost in the cases that have come under his observation is in favor of the electricity, but other factors have entered into the situation, so that there are comparatively few families using electricity as a fuel for cooking, even at the low rate. The plant has been handicapped in the introduction of the new appliance, because it has not been allowed to handle in a commercial way the appliances such as electric stoves and cookers. The local merchants, thinking the trade in them would be large, got out injunctions against the plant to prevent it from engaging in the merchandising of other things than electricity. The result is that there has not been the service and advertising that there might have otherwise been.

The gas company has been quick to take advantage of all the shortcomings of the municipal plant and, without antagonizing it, has continued to hold practically all its former customers for gas as a fuel and to add many new ones.

Service, Conservation, Harmony

The campaign which has resulted thus successfully

has run along the lines of the three watchwords of Mr. McKenzie, the manager: Service, Conservation, Harmony.

Mr. McKenzie believes absolutely in the motto which is largely displayed in his town: "He who serves best, profits most." A large part of his time is spent in studying how the service of the company might be improved. The records of the meters are compared each month with the readings of the month before, and if there is shown to be an abnormal increase the company does not wait to be notified by the complaining customer but before the bill reaches him there is an expert representative of the company at the house to investigate. If the fault is in any way that of the company the bill is revised and the customer never hears of the high bill. If it is the fault of the customer or, as it is in most cases, the excess consumption of poor equipment, the opportunity is opened for the sale of new appliances which are of the distinctive gas-saving patterns and which will in the course of the year often pay for themselves in the gas saved. Whatever may be the trouble, the representative is instructed to do all in his power to correct the defect, to conserve the gas and gain the good-will of the customer.

In order to extend the service rendered the customers the company maintains a demonstration room at its office and a force to explain not only the superiority of the up-to-date gas appliances over the old styles but also to show customers how to use and regulate all styles so as to secure the largest amount of service from the equipment in use. The service department makes no charge to the customer, and the merchandising department is maintained primarily to insure that the customer may have the privilege of purchasing gas-saving appliances at reasonable rates rather than making a profit to the company.

The second watchword is Conservation. That this is more than a watchword will be realized when it is stated that although the number of customers has increased, the actual amount of gas consumed has decreased. The receipts of the company for 1921 have been so far less than in the corresponding months of 1920. In addition to that, there has been a determined effort to save the gas which has been lost in the past through defective mains. The company is now spending $100,000 on this saving alone in the replacement of new mains.

The amount of natural gas in this field is limited and the company is saving all it can. It is unable to serve its consumers with gas for furnaces, simply because it has not the gas to sell. It is therefore all the more interested in saving the gas it has; and by doing it the company is the more able to compete for fuel customers in the field. The whole campaign for conservation, or gas saving, is based on the same conditions; and while it reduces the amount of cash income from customers for the present, it makes an increased market for gas for the years to come and prepares the way for the sale of manufactured gas—which the company will have to sell when the supply of natural gas is exhausted.

Harmony, however, seems to be the strong point with Manager McKenzie. He sees to it that, so far as possible, there is no conflict. He was hardly willing to admit there was a business conflict between 80-cent gas and 2-cent electricity. He was glad to state—and his statement was fully confirmed—that there had always existed the most cordial relations between the management of the gas company and the managers of the municipal plant. He never has a word to say against the city institution, and when a customer of his states that he is thinking of buying an electric cooker the most that he will say is that it is due to the customer, as well as to the gas company, that a careful investigation shall be made The result naturally is that the customer goes and makes the investigation, and usually comes back and buys a gas range. The very fact that confidence is expressed in the outcome of the investigation is half the battle in winning the customer to gas.

Co-operation with Appliance Dealers

Then, there is the harmony between the company and the dealers who handle gas appliances. When it was necessary for the company to put in a line of ranges and other appliances to use in its demonstrations of gas saving, Mr. McKenzie made a visit to each local dealer and explained the situation to him, and informed him as to the makes of stoves which came up to the standard and advised him to put in a stock of one of the makes. He assured the merchant that the company would maintain prices, and offered co-operation in marketing the appliances. The result is that he won the good-will of every merchant and made a booster of each one of them for gas as a fuel. In effect, he made every one of these merchants an agent of the gas company, for when they sell gas-using appliances they are providing for the consumption of gas.

But Manager McKenzie's chief aim is to maintain harmony with the gas-consuming public. He believes absolutely in the value of the satisfied customer to his company and does everything possible to keep them all satisfied. He has a theory that there is no great trick in hiring expert accountants and managers of departments, but that there are not so many people who are able to handle the public. It is on this basis that he has his desk not back in some secluded apartment which is almost impossible to reach but, on the other hand, out in the open of the main room and right between the doors through which every customer must pass as he enters and as he goes out. He is personally acquainted with nearly if not every one of them—he has grown up with the town, so to speak—and every one of them brings his troubles to the manager. Of course, he immediately turns it over to someone else to take care of; but the ditch-digger, or the washerwoman, or the timid girl wife, or the big business man has each a kindlier feeling for the "soulless corporation" whose manager is so cordially interested in their troubles and who is so appreciative of their custom when they come in to pay a monthly gas bill or to buy the latest thing in a gas range.

It is because of this cordial relation that most of his customers ask his advice before they buy the electric cooker, and it is because of his disinterested advice to them to investigate and use their own judgment that many come back to him and buy a gas range from him.

But whatever else Manager McKenzie is, he is a gasman. He is thoroughly convinced that gas is the best fuel for the housewife, AT ANY PRICE, and he can tell you why—and a number of whys—it is to the interest of anyone who has charge of a house and the preparation of meals and the cooking and preserving of foods to buy a high-grade gas range to do it with. He grows eloquent when he gets started on the subject; and all it takes to start him is the casual inquiry of a prospective customer as to the merits of an appliance that can be made to consume gas.

High Capacity Meters*

The Results Obtained from a Series of Experiments

By E. J. TURLEY, Montreal Light, Heat and Power Company

About fourteen years ago our company concluded that the capacity of the then so-called three-light gas meter could be considerably increased without much extra expense by using the same size case and increasing the size of the valves and adjusting the diaphragm to suit the enlarged valves.

Numerous patterns of valves were experimented with, and the valve finally adopted was slightly smaller than that in use in the standard ten-light meter. It was found necessary also to alter the diaphragm, and, contrary to what was expected, it was found that although the valve had been doubled in size, the area of leather in the diaphragm had to be decreased about 15 per cent. This alteration was made by making the width of the diaphragm 3 in. instead of 3½ in., the diameter of the disc remaining the same.

It was found necessary to increase the size of the flag arms cranks, motion work and passages in the same proportion as the valves. The result of this has been that the wear on the different moving parts is no more than in the smaller type.

The following table gives the capacity at different drops in pressure between the inlet and the outlet of various types of meters.

A—Meter has a valve area at inlet of 0.137 sq. in.

B—Meter (which is a five light) has an area at inlet of 0.205 sq. in.

C—Meter (three-light A) has an area at inlet of 0.235 sq. in.

D—Meter (three-light A) has an area at inlet of 0.235 sq. in.

E—Meter (our large valves) has an area at inlet of 0.280 sq. in.

E-1—Meter (large valves, enlarged openings) has an area at inlet of 0.280 sq. in.

F—Meter (ten-light) has an area at inlet of 0.375 sq. in.

Table No. 1—Comparative Test on Meters

Drop in Pressure	Rate in Feet Per Hour						
	A	B	C	D	E	E-1	F
1-10	28	10	9	14	16	16	8
3-10	47	43	58	51	72	83	80
5-10	64	84	84	85	95	126	118
7-10	76	106	96	91	117	150	150
9-10	83	114	118	110	144	163	175
15-10	104	170	147	132	180	218	212
23-10	131	190	180	172	210	256	266
34-10	153	210	210	195	250	290	290

It was at first thought that trouble might arise due to the fact that the meters would be worked faster, and that the leather would become split due to them bending oftener during their life. We have not found this to be the case, and we have had good reasons to conclude that a leather never wears out due to bending. We have altogether about sixty thousand of this type of meter on our services at the present time, and about fifty thousand of the smaller type, and the percentage of bad leathers in the small valve type is very much higher than in the large valve type. We believe that this is accounted for in the small valve type owing to the fact that the leather continually rubs against the inside of the case, and develops hard spots, whereas in the increased capacity meters with the larger valve, the diaphragm, being smaller, does not touch the tin, and does not developed hard spots, which is the cause of the biggest percentage of defective leathers.

We have made careful tests with the various types of meters, and find that if the valves are properly set, that the oscillation is about the same on the large valve as on the smaller valve, and as only a very small percentage of gas is used for lighting, the slight oscillation is not a serious defect. Our experience has also shown us that the greatest percentage of gas meters are used to supply services where there is a water heater and gas stove equipment with four top burners and oven.

The following table gives the consumption at thirty-tenths inches initial pressure when the various types of meters are used.

Consumption in Feet Per Hour

	A	C	E	E-1	F
Large burner	39	40	40	41	40
Water heater	47	49	54	54	53
Stove	124	112	153	160	162
Stove and heater	138	160	180	185	184

The use of the large valve meter does away with a large number of complaints where the pressure is low, owing to the fact that the drop in pressure through the meter is lower for the same quantity of gas consumed.

We have kept careful record of both types of meters when relieved from service, and have found the percentage of leaks in the center stuffing boxes of both types of meters to be about the same.

Our experiences have led us to conclude that the three-light case equipped with the large valve, besides meeting all the requirements of a ten-light meter in service, is no more expensive to maintain and repair than the old type of three-light, and is much cheaper to repair than a five-light or a ten-light, and also allows us to decrease the number of sizes of meters and repair parts for same which it was formerly necessary to carry in stock.

*Paper presented at Canadian Gas Association meeting.

Home Canning As a Sales Opportunity

How One Company Gets Results

By WILLIAM B. STODDARD

Gas companies throughout the country are coming more and more to see the advantage in pushing commercial lines, and few there are who do not now advertise the advantage of their gas ranges for the canning season; but the Peoples Gas Stores, Chicago, Ill., have gone far beyond this, and offer complete kitchen equipment for the convenience of the housewife in this busiest of seasons.

At the opening of the canning season they sent to all their patrons a neat little card enclosed in an envelope and sent under letter postage:

> The Peoples Gas Stores, Michigan Avenue at Adams Street, are now open for the sale of every kind of gas appliance, cooking utensil and complete canning and kitchen equipment.
>
> The store is the largest and finest in the world devoted to this kind of merchandise. Here you will find every kitchen need, from kitchen cutlery, aluminum and Pyrex ware, to refrigerators and kitchen cabinets, and, of course, gas ranges and gas appliances of all kinds.
>
> You will find shopping here a real pleasure. The store is quiet, clean and attractive, and everything is displayed on the main floor, thus avoiding the crowding and inconvenience of elevators.
>
> Plan your kitchen at THE PEOPLES GAS STORES—and be sure to visit us before the canning season. Here you will be sure to find something that will add to the efficiency of your kitchen and your personal convenience during this busy season.

Most of the windows were of the half-back variety, so that people stopping to gaze at the set displays could look into the store and see the tables heaped with gleaming aluminum, sparkling glass, and the competent-looking ranges, heaters, kitchen cabinets, refrigerators, etc.

The windows themselves were small, square and deep, and excellently lighted from above. Each window was devoted to the display of a single line, and the clever way in which they were arranged, together with the very apt cards that accompanied the displays, acted as very efficient silent salesmen.

At the opening of the canning season they had an entire series of windows bearing on canning aids. All of these utensils or equipment could be purchased on time payments, the amount each month being added to the gas bill. Cards shown in each window stated the terms and the amount to be paid monthly on each article.

The first window showed a small modern kitchen with rag rug, kitchen cabinet, enamel-top table, and gas range. The table held several articles of Pyrex ware and aluminum, and so did the shelf of the cabinet; while on the floor were shown pressure cooker, pitcher, pans and other cooking vessels. A large card said: "Fruit has been ripening in the summer sun. The canning season is in full blast. The Peoples Gas Stores offer the best of aluminum utensils and cutlery ready to assist."

The next display featured gas ovens suitable for cooking the fruits and vegetables. At one side was an enameled kitchen cabinet, with a rack above it for cooking spoons, and on the shelf an aluminum table and jars of fruit. At one side was a gas oven, open to show the contents, with a card: "The Conservo in your kitchen will work wonders during the canning season—cooks fruits, meat and vegetables, fourteen 1-quart jars at a time. Cooks a meal for from three to fifteen persons, and more delicious food your never tasted. All on one burner. That's thrift. Price $12.50." In the center was a gas range on which was one of the ovens filled with fruit, with a card: "In this double-oven range you have many of the desirable features of larger and more expensive gas ranges, and it does not crowd the kitchen." Another card announced: "We will deliver and connect your stove free, together with 25 ft. of pipe if necessary. Cash, $45.50; or $5.90 down and $3.50 a month on your gas bill."

The window devoted to Pyrex ware showed a breakfast room in buff and white, with white Swiss curtains at the bungalow windows. Borrowed from a local furniture company were two chairs and a table, on the latter being Pyrex baking dishes of all kinds; while down in front were several boxes of the different utensils wrapped ready for delivery. A card near the wrapped boxes said: "Ask the salesman to give you a dainty card and envelope for your message to go with your gift." Several of the cards were strewn on the floor, and a sign called attention to the appropriateness of this ware as a wedding or anniversary gift.

The last window of the series showed kitchen cabinets, with a card: "This is what you need to save steps during the canning season." On the shelf of the cabinet were aluminum and Pyrex dishes. In the center was a gas stove and at the opposite end a hot-water heater. A card beside the cabinet advised: "This cabinet is properly stocked with food materials. Just see how handily it takes in everything and keeps them all within easy reach. Kitchen utensils can be just as easily stored." A second card suggested: "This cabinet is sold for $47.55—$5.00 down and $1.23 a month on your gas bill; or slightly less for cash." Cards displayed near the gas stove and water heater indicated that they were sold on the same terms. Cards on the gas range declared:

> A Good Small Range
>
> Just right for a small family in a small kitchen and
>
> Just for Two
>
> After the honeymoon, when you get down to brass tacks, there's no better place to buy all your household equipment than the
>
> Peoples Gas Stores

The firm conducts a dozen branches which they call neighborhood stores, each of which was stocked with gas appliances, kitchen cabinets, refrigerators, aluminum and Pyrex ware, as well as gas laundry equipment; at the same time all these housefurnishings were installed in the main store. In order to let their patrons

know of this they enclosed a little slip with their monthly gas bill:

WHICH IS YOUR NEIGHBORHOOD STORE?

Each of our neighborhood stores carries a full line of kitchen and laundry equipment, the same as our main store. A visit to your neighborhood store may save you time and carfare.

All matters concerning any phase of gas service will be just as correctly and promptly attended to as at the main office.

At the bottom of the page was given the list of addresses of the twelve stores.

In order to acquaint the public, not only of Chicago but the thousands who visited the Pageant of Progress from other cities, with their new departure in selling housefurnishings for the canning and Thanksgiving season, they gave out at their booth at the Municipal Pier little tickets on which each person could write his name and address. At the end of the day all the names were placed in a box and five of them drawn, each one of the five then having a chance to win a Simplex gas range, a Reliable gas range, a kitchen cabinet, refrigerator or a Radiantfire heater. At the conclusion of the Pageant the names of all those who had been daily winners were placed in a box and five names drawn, the lucky five being awarded the handsome prizes which had been on exhibition at the Pageant.

"I Don't Want My Son to be a Gas Man"

Why This Advice Harms the Industry

By J. E. BULLARD

A young man just starting in life began asking the advice of the business and professional men in his little city. The butcher he talked with told him not to enter that business.

"It used to be a good business," he said, "when we bought the cattle from the farmers right here in the neighborhood and slaughtered them ourselves, but now the big packers are getting all the profits. There isn't any chance any longer for a man in the business. Don't think of going into this business."

The grocer said:

"I wouldn't advise any young man to go into the grocery business. The chain stores are cutting the heart out of it. It's a rotten business. If I could sell out at the right price I wouldn't stay in any longer myself. Don't go into this business."

The lawyer said:

"Do you know that the average lawyer isn't making a decent living? Unless you are lucky enough to get connected with some great corporation and have them turn their business over to you you're going to have a hard row to hoe. I wouldn't advise you to take up law as a profession."

So it went: every man he talked with seemed to be in a rotten business. There didn't seem to be any way of making money. Something had happened in every business and every profession represented in his city to deprive a young man without money and without influence of any chance to make a success. Yet men were making successes right along. There didn't seem to be any men in his little city who were making a great success, yet he knew some men must be making one, and he was sure in his own mind that it was not due entirely to money and influence, for in the magazines he had read he had learned of many men who had made recent successes and how they had started with nothing.

There was one man left he knew, and to whom he had not talked. This man had started with nothing and now had a rapidly growing and prosperous business. The young man went to him for advice.

"I don't know anything about any other business than my own," this man said, "but I do know that if a young man will apply himself, if he likes the business and will study it, he can find room for all his talent in this business, and I also know that he will get his reward in the way of wealth, and honor too, for that matter."

This seemed to be the only kind of business that was not a rotten business, and the young man secured a position with this firm. He worked hard and applied himself. He studied the business. In the course of time, he worked his way up to a very responsible position and proved to be one of the most valued employees of the concern.

The moral to this story is that when the gasman told this young man that the gas business was a rotten business, that there was no future to it, that he was depriving the industry of a man who would have been a great help to it. The other men who advised him not to go into the line of business they were in were doing likewise for their industries.

Helped His Industry

The man who advised him to enter his line of business if it was a line that appealed to him not only helped his own industry but because this advice resulted in the young man going to work for him helped his business. That man now is worth more money than he would have been if he had told the youngster the business was rotten, because he not only has this employee, who is helping to make the concern more prosperous, but he also has attracted to the concern other men who take pride in it and are doing a great deal to increase the profits.

If the gas business is a rotten business whose fault is it? Some men have been able to make even the junk business a dignified business. The little sweat shops have grown into well-lighted and well-conducted clothing factories. It is not the business, but the men who are engaged in it, that count.

When a man says that he doesn't want his son to go into the gas business, he is saying that the men engaged in the gas business are not of the type that he would like to have his son associate with. He may not think that this is the case, but if he will stop to consider the matter, he will in the end have to admit that this is true.

When we hear a politician say that he woes not want

(*Continue don page* 233.)

American Gas Journal

SIXTY-SECOND YEAR

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As the Journal Views It

Gaining Recruits for the Gas Trade

Doesn't the title of the article in this week's issue of the JOURNAL, "I Don't Want My Son to Be a Gasman," convey a great deal to you? Doesn't it sound natural? Haven't you heard it repeated many times?

The AMERICAN GAS JOURNAL has a great belief in the future of the industry, and, of course, this future lies in the hands of the men who are coming into the industry. We want the best men we can get who will assume the leadership in future years.

Lately there has been a movement among numerous leaders of the field to have colleges devote more attention to the training of engineers for our field. Now, the engineering profession is not the only branch of the industry that needs men; every other branch requires men who can be trained to take their places at the heads of departments, etc., and who will grow up in the business with the thought of making it their life's work.

Certainly no man will admit that the industry is not among the finest in the world. There is no industry that is devoted to giving greater service to the world than ours. True enough, the monetary rewards that will come as a result of the work will not be as great as though a man devoted as much concentrated effort to some other field. But there is another way of looking at success. Surely that man is successful who has devoted his life to service to humanity. It there another industry that can boast of the same record as that of the gas field? We know of none.

The pride that makes men devote their lives to giving service is the pride that animates the man in the gas field. Just think of what is behind the ex-

pression, "Keeping gas on the town"! Think of the hours of worry and labor that come to everyone in the field who has had to face the problems that are daily arising! And the record that has been made is truly wonderful. We know gasmen deep in their own hearts believe thoroughly in their work, and we know that when the expression is made that they do not want their sons to follow in their footsteps it is only because they have fresh in their memories the hardships through which they have passed and which they would spare others.

But it is these trials that prove the stuff of which a man is made, and it is the record to which we can point that shows that this field is composed of red-blooded men who have come through as real men. Yes, the gas industry does hold out attractions for the earnest young man with his way to make in this world that cannot be equaled.

Getting Results

A correspondent takes exception to an editorial that we published last week in which we set forth that business conditions are improving and that the outlook for the fall is very bright. "We do not agree with you," he states in his letter. "Business has not been bad at any time with us this summer. True enough, we found that we were not overloaded with customers, but that simply made us dig in harder than ever with the result that the summer months of 1921 have been the biggest in the company's history."

That is the kind of communication that we like to receive. It shows that real effort will produce real results and that we can always do business if we are willing to work for it.

In his communication, the writer sets forth the results obtained in a series of campaigns that his company (a moderate sized one) carried on, and an examination of the figures certainly shows that not a minute has been lost.

In commenting on the showing, he writes "We were particularly fortunate inasmuch as we did not have to start rebuilding our sales force. We managed to keep our men together and our organization was all set when we decided that we would not recognize that there was any such thing as a slump in business."

This letter brings to mind the fact that despite the cry of hard times a Government report shows that savings bank deposits during the past year have increased. This would seem to show that the man of moderate means is not suffering from a lack of money but that he has been waiting until prices have reached a more normal level. We believe that any gas company can duplicate the work that was done by this particular company if a sufficient effort is made. But that effort must not only be a hard one: it also must be sustained. Only in this way will business be done.

Fire Causes and Prevention

(*Continued from page 225.*)

some of the liquids may be absorbed. Vegetable and animal oils are particularly liable to cause spontaneous combustion.

Storage Tanks

Large quantities of fuel oil, gasoline, and such liquids should preferably be stored in tanks buried underground. Pits are objectionable because vapors may accumulate in them. The tanks, if above ground, should be inclosed by a retaining wall or an earth embankment, and should be electrically grounded. Such underground storage tank should have a vent pipe extending above the roof and turned down at upper end with screened opening.

Oil House

Where the quantity of oils used is not sufficient to require large storage tanks, oil houses in which several barrels or containers of various oils may be stored are desirable. Oil houses should be placed at some distance from other plant buildings so that, should fire start in the oil house, it will not endanger the other buildings. Oil barrels should not be placed upon wooden floors or wooden racks, but upon a cement floor or else on concrete blocks or brick. Only electric lights with vapor-proof globes should be used for lighting oil houses, and smoking should never be permitted in or near them.

Local Supplies

Local supplies of gasoline, benzine, and similar substances should be kept in safety cans which will not leak when inverted. Only a sufficient quantity should be taken into plant buildings to satisfy the daily needs. Metal pans should also be provided in which to set cans containing local supplies of oil, gasoline, benzine, etc., and preferably such local supplies should be stored in a metal cupboard.

Oil Drip Pans

Metal drip pans should be provided under all machines using cutting oil, to catch the oil drippings and the oily turnings and shavings.

Dipping Tanks and Paint Vats

On account of the inflammability of varnishes, enamels, and some paints, serious fires will surely result unless due precautions are taken in their use. Fire will easily start in such liquids and when once started burns fiercely and is very difficult to extinguish. Under no circumstances should smoking or the use of open lights be permitted where these liquids are used.

All dipping tanks should be made of metal or other incombustible material and provided with tightly fitting covers which, in case of fire, will automatically close through the action of a fusible link.

Cleanliness

It is likely that no one cause leads to more fires than bad housekeeping. Accumulations of combustible refuse such as oil-soaked and paint-covered clothing, rags, waste, excelsior, and shavings, create a very serious fire hazard. All such materials should be removed each day from every work room and deposited in receptacles provided for the purpose. Self-closing metal containers or waste cans, in which to place oil soaked waste and rags should be provided at convenient locations about work rooms, and such material should not be left on the floors, nor placed in lockers, cupboards, or bins. At the end of the day, these waste cans should be emptied and the contents safely disposed of.

Rubbish Burning

Fires have often been caused by burning rubbish too near combustible buildings, sheds, lumber piles, or fences; also by starting rubbish fires on windy days, and in locations where grass or other inflammable material has spread the fire. Rubbish should preferably be burned in a suitable inclosure (or burner) made of metal, brick or concrete, and provided with a screened covering to prevent the escape of sparks and embers. If burned in the open no fire should ever be started on a windy day, or within fifty feet of any combustible building or material, or within twenty feet of any structure.

Lockers

Workmen will often leave oily waste in their clothes or throw a handful in the bottom of locker, and as a result a fire is apt to occur. Metal lockers are, in every case, advisable because there is always a certain amount of oil and moisture in workmen's clothes which may cause spontaneous combustion. The lockers should be of sufficient size so that clothing may be hung up to permit free air circulation.

Inspection

Frequent periodical inspections are important to make sure that refuse and waste material of an inflammable nature does not accumulate in quantities which would constitute a fire hazard and that all workmen's lockers are kept clean and do not contain paint-covered or oily clothing or oil-soaked waste and rags. The inspector should also examine the fire-fighting equipment and apparatus to see that it is in good condition and easily accessible.

Matches and Smoking

Several of the most serious fires on record are known to have been caused by lighted matches being thrown aside or by a burning cigarette or cigar stump. The use of matches in industrial plants should be reduced to a minimum and, where they are required, it is recommended that matches of the safety type only be furnished.

There is a growing tendency to prohibit smoking in all departments of manufacturing plants where there is any risk of fire. Smoking should certainly be prohibited in woodworking shops, textile mills, flour mills, grain elevators, oil houses, pattern storage rooms, and wherever inflammable liquids such as gasoline, benzine, alcohol, and the like, are stored or used. In all such rooms "no smoking" signs should be placed and the rule should be strictly enforced. Where smoking is prohibited in the plant except in certain departments, or during specified hours, it is well also be posted signs to that effect.

I Don't Want My Son to be a Gas Man

(*Continued from page* 230.)

his son to go into politics we never question that the reason is that he doesn't want his son to associate with the class of men who are in politics. He couldn't mean anything else, because any man who seeks public office for the purpose of serving his fellow men better than some one else might serve them is doing a patriotic act. Everyone knows that, so there is no question about what the politician means.

Just so long as men say that they don't want their sons to go into politics, so long will we be ruled by politicians of the lower class. When men consider it a good calling for their sons then will the tone of our politics become purer.

It is exactly the same in the gas business. There is one thing, however, that the gasman is likely to overlook, and that is the impression that such a statement makes upon the public. If the business was an honest and an honorable business there should be no reason why he should not want his son to be a gasman.

If he does not want him to be, then the business must be conducted in a manner that will not do the character of the son any good, to say the least. No other impression can be gained. The more men who say that the business is a rotten one, the more prevalent is going to become the idea that the men who direct it are not any too honest and honorable. In other words, the statement casts a suspicion upon everyone connected with the business and especially those at the head of it No matter how many men who have won fame in other fields are placed in high positions they cannot purge the industry of this taint. Instead they become tainted themselves in the regard of the public.

People who make statements about the undesirability of a young man going into the gas business do not realize that they are doing so much harm to the industry, but this ignorance does not make the damage any the les sor the reflection cast upon the men in the industry any milder. It does place the gasman in very much the same position as the political boss.

It matters little how good a political boss may be, how much better the Government of his city or State may be on account of his efforts, no one will believe that he is rendering any great service to anyone but himself and his followers. In the same way, when gasmen tell their friends to keep out of the gas business because it is a rotten business, it becomes much harder to make the public believe that the company is rendering the unselfish service that it is. The people are sure to believe that the gas company is always trying to get all that it can out of them and to give them as little as possible in return.

Knock Breeds Knock

It always costs money to know a business that a man is in. It means that the business is not going to grow as fast as it otherwise would, because knock breeds knock just as success breeds success. There is nothing

that would give the gas industry a greater forward impetus than a conviction on the part of every gasman that he is in the very best business that he could be in. There is nothing that will give it a more serious setback than the attitude of the men in it that they don't want their sons to be gasmen.

Just think what a country this would soon be if every man should say that he did not want his son to grow up an American and sent him off to Russia, China, Japan or some other country so he wouldn't become too much attracted to this country and decide to live here all his life. When a very large percentage of the men in any industry do not want their sons to enter that industry they are doing for the industry what they would be doing for their country if they expressed themselves as not wanting their sons to become Americans. As a matter of fact, one of the greatest weaknesses of our industrial structure is that the sons do not often enough follow in the footsteps of their fathers.

Dealing With the Winter's Problems Now

Preparing the Consumer for the Coming Months

Some time ago the JOURNAL presented to its readers, in several articles, the arguments that the Citizens Gas Company, of Indianapolis, was using in a series of paid advertisements in newspapers in its tributary territory, to show the reasons for a by-product coke business and why such development of this business as has been apparent by that company promoted the possibilities of cheaper gas. The arguments also showed very graphically many of the difficulties that are encountered by a by-product company in its operation. This was particularly true with reference to the building and holding of adequate coal supplies during such periods of stress as mine labor periods of unrest.

For a time, the gas company stopped its advertising campaign and then began it again, devoting much attention to the winter and fall that are now upon us. Several of the statements of the company on these subjects follow:

PROBLEMS OF THE BY-PRODUCT COKING BUSINESS

Coal Supply

An ever-present problem of the by-product coke operator is the supply of coking coal. Both as to quality and as to quantity, constant effort and watchfulness are required to keep up the supply.

Coal is not fuel for the by-product coke operator; it is raw material for manufacture. The quality of coal which is to be burned as fuel is of importance to the purchaser, but quality is of infinitely greater importance when coal is the raw material for a chemical industry.

Some good coals will not coke at all. Of course, these cannot be used in by-product coke ovens. Some will coke well but are so full of impurities that the coke would be of inferior quality—and thus not readily marketable when produced in large quantities. Some is comparatively pure and will coke, but will make coke of such weak structure that it is of limited usefulness. Some coals swell so much in coking that the coke cannot be pushed out of the ovens without great damage to the walls; others shrink so much in coking that the product is brittle and nearly useless.

Again some good coals yield little or no gas and by-products. Others are rich in gas but will not make good coke. Some coals which seem to be high in volatile matter are nevertheless unsuitable because much of the volatile matter is chemically combined water or oxygen, neither of which has any value for gas production. All by-product coke ovens must produce a good deal of gas, whether it is wanted for city distribution or manufacturing purposes. Some coals which will coke will not yield enough gas to heat the ovens themselves.

These conditions indicate that the selection of coal for our coke ovens is no trifling matter. To meet the coke-trade conditions which we have explained in previous statements it has been necessary to produce coke of the highest quality. We have been constantly on the lookout for coals which in various combinations will produce coke of the highest quality, the largest possible amount of coke from a ton of coal, and gas in large quantities and rich in by-products. The coals which best meet our requirements are found in southern West Virginia, eastern Kentucky and southwestern Virginia. No coals nearer to Indianapolis meet our requirements.

Hence, the selection of coal of quality to produce the best all-round results raises for us transportation and other problems which would be very much reduced if we were only seeking fuel. These will be explained in further statements.

The problems of getting the coal when needed were discussed in the next statement, as follows:

Having determined the kind of coal required for our coke ovens, as explained in our last statement, the next problem is to get the coal when needed.

Keeping up our coal supply has never been without difficulties, but since the fall of 1916 these difficulties have usually been so multiplied as to seem at times almost insurmountable. Here are the principal ones:

1. Winter brings transportation troubles which usually prevent the railroads from maintaining a regular movement of coal cars. Some reserves must be kept at our plants at all times, and these reserves must be much larger in winter than in summer. How much larger—nobody can exactly foresee. If the winter turns out to be open, the general demand for coal is less, and the railroads can move all coal more easily. A large stock provided in the preceding summer and fall would then prove to have been excessive. Such was our experience last winter. If the winter turns out to be unusually severe, or if a strike comes in winter, then a large stock provided during the preceding summer may prove inadequate. Such was our experience in the winter of 1919-20. Nobody can foretell weather conditions and only to a limited extent can anybody foresee unusual business conditions or the policies of railway and mine labor. Therefore, nobody can make

perfect provisions for supplying by-product coke ovens with coal reserves.

2. The problem just stated has been made more difficult by conditions growing out of the war. In 1917 and 1918 the U. S. Government controlled all coal supplies. By-product coke ovens were recognized as essential industries, but some of these plants were regarded as more important than others. We had made better provision for suitable coal supplies than many others, but the Government diverted a large proportion of our coal to other plants. For example, the U. S. Steel Corporation was trying to operate some of its ovens largely on Illinois coal, but the inferior coke produced so cut down the output of steel that some of ou rbest coal was sent to those ovens. Likewise some of our coal was diverted to the ovens of the Bethlehem Steel Corporation at Baltimore. We were obliged to get along with less coal and to hunt up inferior substitutes for what was taken from us. When the miners' strike occurred in November and December of 1919, we not only had good stocks of coal on hand, but had made such provision for that very emergency that all during the coal strike coal shipments to us were entirely sufficient for full operation.

But again the Government undertook to distribute coal to meet real or imagined distress, and practically all coal shipped to us was diverted because we had a stock on hand. If, as now seems probable, there is another coal shortage next winter, it is quite likely that some governmental agency will be established to make distribution of coal according to some arbitrary rules. These interferences with our coal supplies—whether justified or not—have made our problems much more acute. Altogether apart from the vicissitudes of business, our operations have been greatly hampered by action of public authorities. Our expenses have thus been greatly increased, our production has been greatly reduced at times when there has been the best demand for our products, and the gas supply of Indianapolis has been seriously interfered with. Last winter there were no gas shortages because neither transportation difficulties onr governmental control interfered with our coal supply.

Difficulties of obtaining adequate car supply and many other phases of the constant fight to keep a safe coal supply on hand were dealt with in the next statement, which follows:

We want to point out some further problems which we must face in maintaining our coal supply:

3. The production of coal at the mines is often determined entirely by the supply of cars by the railroads. Few mines can store any coal whatever, and none can store any considerable quantity. At present coal production is 50 per cent below normal because of light demand for coal. During this dull period no coal is being stored at the mines to be ready for quick shipment next winter. The car supply is not now holding down production; for although the railroads do not have enough equipment to take care of normal coal shipments, they have more than is now being used. At other times there is a good demand for coal and a fair car supply, but production is hindered by labor troubles, as in the winter of 1919-20, or by labor shortage, as in 1917. In general, however, the limitation on the coal supply of the country has been a shortage of coal cars.

In winter it requires more cars to move the same quantity of coal than it does in summer. Snow delays trains and cold makes it harder to keep up steam. It takes longer for a coal car to reach a consumer and return to the mine. Therefore, a given number of cars may be ample to keep mines running in the summer, but when slower movement occurs the output of mines is reduced because these same cars are on the road so much longer. For example, coal cars supplying our ovens are now able to make the round trip in less than ten days on the average. In bad winter weather they cannot make quite two trips a month. So far as we are concerned, this means that the railroads need 50 per cent more coal cars to keep us supplied in winter than in summer. When we add that our ovens, when running full, require the arrival of over forty coal cars every day (including Sundays) it will be noted that the railroads must then keep an average of about 400 coal cars in our service when traffic conditions are easy and about 600 when they are difficult.

The running down of railway equipment is an even more serious cause of reduction of coal mining than bad weather. At present the financial condition of the railroads is so bad that they are unable to make headway in restoring their physical equipment, which suffered immense deterioration during the war. There are now a great many idle cars and locomotives, but a large proportion of these are unfit for service. Even if they were all first class, they would not be sufficient for the normal business of the country.

Here are the two causes of car shortage: The seasonal shortage because cars have to be kept so much longer in transit, and the actual lack of equipment to meet normal demands, even when trains can move quickly. And car shortage always means coal shortage. Few manufacturers have done more than we to guard against a coal shortage, but the most far-sighted and wealthiest concerns cannot save themselves completely from nation-wide disasters. Ordinary precautions to secure winter coal reserves fail completely in extraordinary times. It is with the greatest concern that we view the threatened car shortage which will appear as soon as business revives.

We will explain some other conditions which limit coal supply, but this is the most serious at the present time and demands the attention of all thoughtful citizens.

The last of the statements that have been printed thus far dealt with mine labor conditions, that may be expected during the coming fall and winter, as follows:

We have presented the following facts regarding our problems of coal supply:

1. That large reserves are required for safe operation over every winter.

. That war and after-war conditions have made it impossible in recent years to obtain suitable supplies for either current use or reserves.

3. That the production of coal is largely determined by the supply of railway cars. Although there are ample cars during this season of depression, the equipment of the railroads is now in such condition as to make it doubtful whether mines can be given reasonable car supplies when business undergoes a moderate improvement.

We desire to add a brief statement on mine labor conditions.

4. While coal production is frequently limited by a shortage of coal cars, it has also been limited at times by labor conditions. Everybody remembers how the strikes in November and December of 1919 reduced the output of the mines from an average of over 2,000,000 tons per day to about 600,000 tons per day and brought great loss and inconvenience to the whole country. In 1917 there was a very great disinclination on the part of the miners to get out the quantities of coal that were needed, while in 1918, under the special stimulus of war organization and appeals to patriotism, they brought production up to its highest point.

In addition to guarding against transportation difficulties, we must guard against labor troubles at the mines. Happily we had sufficient reserves to carry us through the miners' strike of 1919, but when railroad strikes soon followed it was found that our usual reserves were not sufficient. Generally, the mine labor troubles come in the spring, since agreements between the unions and the operators usually expire March 31. A great many coal operators look for a suspension of mining next April, because it is believed that a reduction should be made in miners' wages and that the unions will then resist such reduction. Whether there is real ground for these fears or not, the possibility of a considerable interruption in mining must be recognized; and it is none too early now to take steps to secure reserves to meet such an emergency.

In the past we have always considered it necessary to have a coal reserve by October sufficient for sixty days' operation of our ovens, and when special dangers threatened we have considered a ninety days' supply none too great. In providing for next winter, we have to take into account these possibilities: (a) Next winter will probably be more severe than last winter. (b) The general industrial demands for coal will probably be greater next winter than they were last. (c) The condition of locomotives and coal cars is probably worse to day than ever before. (d) There is little danger of mine labor troubles during the coming winter because wage agreements run to the end of next March, but there is a possibility of strikes next spring. All of these possibilities must be weighed in reaching a conclusion as to the coal reserves which we should accumulate before next winter—and after reaching that conclusion we still have to find the coal and finance the purchases.

Gas-Pipe Explosion—Two Killed—Man Hurled Fifty Feet

Tony Lavelle, of Glassport, and Arthur J. Thompson, of McKeesport, Pa., were killed near Elizabeth, Pa., last week when gas pressure which was being turned into an eight-inch line from a well on the Andrews farm in Roberts Hollow, burst the pipe. William Luffey, general superintendent of the Peoples Natural Gas Company, Glassport, Pa., was injured and is suffering from a compound fracture of the left leg and burns of the face and eyes. His condition is very serious. Frederick Benkert, of Glassport, is also suffering from a fractured leg and burns The injured men were taken to the McKeesport Hospital.

The well, which was being turned into the line, had come in on the Andrews farm about three weeks ago, and Superintendent Luffey, with Tony Lavelle, a foreman of the Peoples Natural Gas Company, had gone out to turn the flow of gas into the company's pipe line. The connections had been made and the joint being tested when the explosion occurred, blowing Lavelle, who was sitting astride the pipe, fifty feet, his body being later located in a clump of shrubbery on a hillside. Thompson, who was standing near to help Lavelle, was also thrown a short distance by the force of the explosion. The other men were within a few feet of where the pipe broke and close enough to be struck by flying fragments of pipe.

To Vote on New Lighting System

Webster, Mass.—Joseph A. Patenaude, chairman of the Webster Selectmen, received figures from the Webster-Southbridge Gas & Electric Company, showing the cost of the proposed ornamental lighting system to the town. The selectment will bring these figures before the voters at the special town meeting when a vote will be taken as to whether this system will be installed. The net additional cost to the town will be $3,182. The figures as submitted by the light company follows: Twenty-two luminous arcs to burn until midnight at $87 per light for a year, $1,914; for twenty-four luminous arcs to burn all night at $107 per light per year, $2,568; total cost of system per year $4,482. Under the old system of fifty-two 100-candle-power lamps at $25 per light per year, the lighting cost to the town was $2,300, and thus the net additional cost to the town for having a white way on the main street would be $3,182.

It is also the plan of the selectmen and officials of the Spencer Gas Company, Spencer, Mass., to have the street lighting system for South Spencer voted at the annual town meeting installed and ready for business during August. The thirty lights will be placed in the village, and on the road leading to it. There is now a movement on foot among residents to get lighting for household purposes. To do this the gas company must be guaranteed enough customers, according to the ruling of the Public Utilities Commission, to make the investment a paying one. To date, not enough residents have agreed to the proposition, but those who want the house lights are hopeful that they will have them before the winter.

Public Utilities Securities Market Report

Prices of Representative Gas Bonds

(Quotations furnished by The National City Company)

Company	Issue	Maturity	Sept. 8, 1921 Bid	Asked
American Lt. & Trac. Co.	Five Year 6s	May 1, 1925	91	91½
Brooklyn Union Gas Co.	First Consol. 5s	May 1, 1945	84½	86
Columbia Gas & Elec. Co.	First 5s	Jan. 1, 1927	84¼	85½
Consol. Gas, Elec. Lt. & Pr. Co. of Baltimore	First Ref. 7½s	Dec. 1, 1945	99	100
Consol. Gas, Elec. Lt. & Pr. Co.	General 4½s	Feb. 14, 1935	76½	77½
Consol. Gas Co. of New York	Sec. Conv. 7s	Feb. 1, 1925	101½	102
Consol. Gas Co. of New York	One Year Sec. 8s	Dec. 1, 1921	100⅛	100⅜
New Amsterdam Gas Co.	First Consol. 5s	Jan. 1, 1948	65	68
Denver Gas & Elec. Co.	Gen. (now 1st) 5s	May 1, 1949	79	82
Detroit City Gas Co.	Gold 5s	Jan. 1, 1923	91	93
Equitable Illum. Gas Lt. Co. of Philadelphia	First 5s	Jan. 1, 1928	96	99
Hudson County Gas Co.	First 5s	Nov. 1, 1949	73½	75
Laclede Gas Light Co.	Ref. & Ext. 5s	Apr. 1, 1943	76	78
Louisville Gas & Elec. Co.	First & Ref. 7s	June 1, 1923	96	98
Michigan Light Co.	First & Ref. 5s	Mar. 1, 1946	70	72
Milwaukee Gas Light Co.	First 4s	May 1, 1927	81½	83
Pacific Gas & Elec. Co.	Gen. & Ref. 5s	Jan. 1, 1942	80	80½
Pacific Gas & Elec. Co.	Col. Tr. Conv. 7s	May 1, 1925	97½	99
Pacific Gas & Elec. Co.	First & Ref. 7s	Dec. 1, 1940	99½	100
Cal. Gas & Elec. Corp.	Unif. & Ref. 5s	Nov 1, 1937	85	86
Peoples' Gas Lt. & Coke Co.	Refunding 5s	Sept. 1, 1947	74¾	76
Chicago Gas Lt. & Coke Co.	First 5s	July 1, 1937	78	79
Portland Gas & Coke Co	First & Ref. 5s	Jan. 1, 1940	78	80
Seattle Lighting Co.	Refunding 5s	Oct. 1, 1949	67	70
Southern California Gas Co.	First 6s	Nov. 1, 1950	84	87
United Gas Improvement Co.	Two Year 8s	Feb. 1, 1923	99¼	99¾
Utica Gas & Electric Co.	Ref. & Ext. 5s	July 1, 1957	82	85
Washington Gas Light Co.	General 5s	Nov. 1, 1960	77	78
Western States Gas & Elec. Co. of California	First & Ref. 5s	June 1, 1941	77	80

Pays Large Dividends

Rochester, N. Y.—The Gas & Electric Corporation on Sept. 1 retired bonds and made interest and dividend payments amounting to $4,394,859. The three-year bonds issued by the old Railway & Light Company, the predecessor of the corporation, amounting to $3,900,000, were paid through the Bankers' Trust Company of New York City. At the same time interest amounting to $136,500 was paid on the bonds. Interest amounting to $245,000 on the general mortgage bonds, Series B, of the corporation was paid through the Bankers' Trust Company. The bond issue aggregated $7,000,000. Temporary bond certificates were issued with the understanding that the concern printing the bonds would have the certificates, with coupons attached, ready for distribution prior to Sept. 1. However, the printing company failed to complete the certificates in time. Arrangements were made with the trust company to honor the temporary certificates, and when the permanent certificates are issued the first coupon will be detached.

In addition to the interest and bond payments, the regular dividends on the 5 per cent and 7 per cent preferred stock were paid, amounting to $68,359.

Stocks Widely Distributed

San Francisco, Cal. — The once popular belief that large corporations are owned by a few wealthy individuals certainly meets no support in the case of the Pacific Gas & Electric Company. According to a recent compilation made by the company, of 13,368 subscriptions received for its first preferred stock, 7,407, or 55.4 per cent, are for five shares or less and 11,178 subscriptions, or 76.2 per cent of the total, are for lots of from one to ten shares.

In San Francisco alone over 5,000 persons participated in the ownership of Pacific Gas & Electric Company preferred. The company's stockholders number persons in every walk of life, from the millionaire to the wage worker.

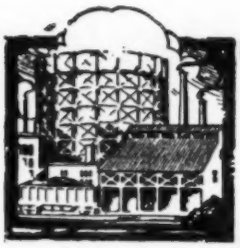
The list of stockholders grows daily, $711,100 par value of first preferred stock being sold in the month of July to 515 purchasers. This brings the total amount of stock sold by the company direct to its consumers and others in the past seven years up to $22,680,400.

Utility Bonds Sold

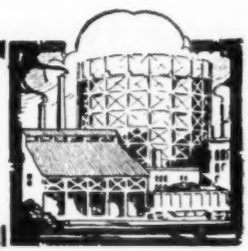
The Louisville Gas & Electric Company, which supplies electric light and power and natural gas to the city of Louisville, Ky., and surrounding territory, has sold an additional block of $500,000 first and refunding mortgage 7 per cent gold bonds to the Harris Trust & Savings Bank, Chicago, the Guaranty Company of New York and E. H. Rollins & Sons. Bonds are due June 1, 1923, and are being offered at 98.40, to yield 8 per cent.

Planning Note Issue

The Standard Gas & Electric Company is reported to be planning a new note issue of about $4,500,000 to refund its 7 per cent convertible notes, due Nov. 15, 1921.



NEWS OF THE GAS INDUSTRY



Incorporate Big Gas Co.

New Orleans, La.—A Washington special to the Times-Picayune says:

"A $6,000,000 gas company has been incorporated in Delaware to provide natural gas to the cities tributary to the Monroe gas and oil fields. While the program of the new corporation with reference to pipe lines has not matured fully, it is altogether likely that the lines will be extended to serve New Orleans, Houston, St. Louis, Little Rock, Beaumont and many smaller places.

"The company was incorporated under the name of the Arkansas, Louisiana & Texas Development Company. John Walsh, of Washington, a brother of Senator Walsh of Montana and former general counsel of the Federal Trade Commission, is one of the company's incorporators. The other incorporators are J. S. Cullinan, of Houston, and E. A. Frost, of the Frost-Johnson Lumber Company, located at Shreveport.

"The Monroe field is thought to contain more natural gas than any other single area yet discovered. The United States Bureau of Mines estimated the amount of recoverable natural gas in that field exceeds four thousand billion cubic feet."

Consumers Get Refund

Sharon, Pa.—Totaling upwards of $150,000 has been mailed by the United Natural Gas Company to consumers of gas in northwestern Pennsylvania. The checks cover a refund for gas used between December, 1920, and July, 1921. The gas company advanced the gas rates and protests were made to the public service commission, who ordered the company to reduce the rates and refund the consumers 10 cents for every 1,000 ft. of gas used during the six months. In Sharon and Sharpsville alone the checks total $35,000. The average return to each consumer is about $6. In some instances the patrons of the company will receive checks for only 1 cent.

Arkansas Natural to Appeal Rate Case

Little Rock, Ark.—The decision of the Arkansas Railroad Commission in the gas rate case, handed down last week, will be "disastrous to the domestic consumers as well as to the Arkansas Natural Gas Company," according to W. B. Smith, attorney for the producing company.

Mr. Smith announced that an immediate appeal to the Pulaski Circuit Court from the action of the railroad commission will be filed. It is presumed that the cases will go on through the courts, resulting in several years of litigation.

Mr. Smith said that the "disastrous" feature was that one of the orders prohibits the company from shutting off industrial concerns. The company, he said, has been desirous of shutting off the big industrial users to conserve the gas for domestic purposes.

"Fully half of our gas is used by industrial concerns," said Mr. Smith. "They use between three and four billion cubic feet a year. Each year the industrial concerns are permitted to use gas reduces the life of our present source of supply at least one year. Continued use of natural gas by industries will exhaust the field at a rapid rate."

The statute governing disposition of the gas rate case provides for an appeal to the Pulaski Circuit Court, and from there to the Supreme Court. An appeal to the United States Supreme Court could be taken from the State Supreme Court.

GENERAL GAS & ELECTRIC COMPANY and subsidiaries report for July operating income of $226,871, against $113,951 for July last year, an increase of about 99.1 per cent, and for year ended July operating income of $366,602.

Coming Convention of P. C. G. A. Program

Arrangements have been completed for the twenty-eighth annual convention of the Pacific Coast Gas Association at Del Monte, Cal., and the days set aside for the occasion are Tuesday, Sept. 20, to and including Friday, Sept. 23, 1921.

The Monterey Peninsula, on which Del Monte is situated, makes an ideal setting for a convention. The climate is perfect, the accommodations excellent, the attractions unsurpassed, and the outdoor life complete. This fact is fully appreciated, as evidenced by the general enthusiasm that greeted the early announcement when Del Monte was selected as the convention place.

The indications point to an unusually well-attended convention this year. The arrangements committee has prepared a very clever program for entertainment; this, coupled with the general attractions around Del Monte, will induce many to attend. The meetings committee has arranged a program of papers and reports; every interest in the industry has received its attention, with the result that a perfectly balanced program is offered.

The Hotel Del Monte will be the convention headquarters. Suitable accommodations have been provided for the meetings and banquet. The hotel management has offered special rates for the occasion and the members are urged to take advantage of same.

This year a new feature will be introduced in conducting the business sessions. The activities of the Pacific Coast Gas Association are now organized under three classifications—accounting, commercial, and technical. Each committee is responsible for reports and papers pertaining to subjects and questions of moment that come under their jurisdiction. To each committee has been allotted a definite

period of time during the session, in which they will present the program that they have arranged.

The complete program and its arrangement for the business session is as follows:

TUESDAY, SEPT. 20

10.00 A. M. — Formal opening by President W. M. Kapus.
Regular order of business.
President's address.
Paper by George L. Myers, "Turn on the Light and Have Faith."

2.00 P. M. — Accounting committee—A. P. Parratt, chairman, presiding.
1. "Mechanical Bookkeeping of Consumers' Accounts," by F. C. Ingram.
2. "Mechanical Cost Accounting," by C. W. Platt.
3. "Advantages of Combining Gas and Electric Consumers' Registers," by H. W. Beekman.
4. "The Value of Written Records in Connection with Valuation of Gas Distribution Systems," by R. E. Crossman.

WEDNESDAY, SEPT. 21

9.30 A. M.—Technical committee—E. L. Hall, chairman, presiding.
1. "Protective Covering for Steel Pipe," by L. M. Klauber.
2. "Thermal Efficiency of an Oil Gas Set," by E. L. Hall and S. H. Graf.
3. "Gas Holder Capacity and Generating Capacity," by J. M Dickey.
4. "Old Age Meter Changes," by C. R. Miller.

On this day there will also be presented a report from the joint committee on the efficiency and economy of gas.

THURSDAY, SEPT. 22

9.30 A. M.—Commercial committee—Frank Wiess, chairman, presiding.
1. Industrial Gas: "Galvanizing," by C. M. Roberts; "Gas Furnaces for Candy Cooking," by James Beveridge; "The Sale of Gas Furnaces for Heat Treating Steel and Forging," by John B. Redd.
2. "Maintenance and Stimulation of Gas Arc Sales," by F. Talcott.
3. House Heating: "Gas-Fired Boilers for Heating," by M. L. Page; "Warm Air House Heating," by J. B. Smith.
4. "Sales and Compensation of Salesmen," by G. P. Egleston.
5. "Advertising," by G. D. Mantle.

Following the commercial committee session, the Wrinkles (R. L. Clark, editor) and Experience (John Clements, editor) departments will present their reports.

The balance of the session will be given over to completion of business and election of officers for the following year.

Expanding Utility Plant

Baltimore, Md.—Incidental to the increase in the capitalization of the Consolidated Gas, Electric Light & Power Company from $30,000,000 to $55,000,000, the corporation has published some details regarding its enterprise. The generating stations are developing 240,000 h.p., which is distributed in the form of electrical energy, besides which the management buys 118,000 electrical horse-power from the Pennsylvania Water & Power Company. The company's gas works occupy fifty-seven acres of land and have a daily capacity of 45,000,000 cu. ft., the process being the Lowe water-gas installation. From Sparrows Point, on Chesapeake Bay, fourteen miles from Baltimore, the company obtains a large quantity of by-product coke-oven gas from the iron furnaces and steel mills of the Bethlehem Steel Company. The 1920 census credits Baltimore with a population of 733,826, a gain of 175,341, or 31 per cent, since 1910, the largest growth in any decade of the past fifty years. Because of the city's industrial growth during recent years it is believed that the above increase in population will be duplicated or surpassed during the next ten years, and the company is acting to meet the future conditions.

Cuts Gas Price

Fall River, Mass. — The Fall River Gas Company has announced a cut of 10 cents in the net rate for gas in this city, to become effective Sept. 15. The new rate will be $1.15 per 1,000 cu. ft., against the present rate of $1.25. The gross rate is to be cut 5 cents, from $1.30 to $1.25.

Coming A. G. A. Convention Entertainment Features

There will be assembled at the Congress and Auditorium hotels during the convention week of the A. G. A. nearly 1,500 gasmen, manufacturers, their representatives and guests.

This is going to be a rousing meeting, whose keynote will be optimism for the immediate future and a revival of business activity for our industry.

The business sessions will begin on Wednesday morning, Nov. 9, and extend through to Friday evening, Nov. 11.

The entertainment features will include the following functions: Wednesday evening, Nov. 9, at 9 o'clock, Congress Hotel, president's reception, followed by dancing, during which will be served a buffet supper. Tickets $2 per person. Thursday evening, Nov. 10, at 7.30 o'clock, Congress Hotel, annual banquet, followed by dancing. Tickets $7 per person.

We are promised on these two occasions a most interesting relaxation from the cares of business.

Tables for the banquet (seating ten persons) will be reserved so far as possible to meet the wishes of members.

Make your table reservations now direct to association headquarters.

City Refuses Offer for Lighting Plant

Fremont, Neb.—The Fremont City Council has refused to accept the offer of the Doherty Light & Gas Company, of this city, which asks $190,000 for its property in Fremont. The company offered to pay the expenses of a special election, not exceeding $1,000, and the cost of advertising if the city would place the matter before the voters.

With the proposition refused, Manager Lloyd Phillips stated that the company would undoubtedly go into the hands of receivers.

This decision came after months of wrangling over prices and after the city had paid $3,200 for the services of appraisers, who adjudged that $190,000 was a fair price to offer. The city council offered the Doherty company $25,000 for the distribution system, but the owners held out for $50,000. Fremont gas and electric light consumers are anxiously awaiting the outcome of the fight.

Brooklyn Borough Rate Cut to $1.40

Brooklyn, N. Y.—The Brooklyn Boro Gas Company, which serves the Coney Island district, has been ordered by the State Public Service Commission, of which William A. Prendergast is chairman, to reduce its rate for gas from $1.50 to $1.40 per 1,000 cu. ft. and to appear before the commission and show cause why the rate should not be reduced to $1.35 pending an investigation as to what the final rate should be.

To Start Work on Gas Plant

Chicago, Ill.—Oct. 1 is the date now tentatively set for beginning operations of the new $18,000,000 gas and coke plant built for the use of the Peoples Gas Light & Coke Company. Completion of the plant has been delayed fully six weeks by the Chicago labor situation.

Financial Statements

The Colorado Fuel & Iron Company, engaged in the production of coal, iron and steel, and no doubt the largest coal producers in the Rocky Mountain regions, has issued its quarterly statement, for the second quarter, as of June 30. A comparison with the same period for 1920 is exhibited:

	1921	1920
Gross receipts	$7,990,093.96	$14,239,346.72
Operating expenses	7,307,603.38	12,109,074.28
Net earnings from operation	$ 682,490.58	$ 2,130,272.42
Additional income from other sources	101,277.33	128,210.35
	$ 783,767.91	$ 2,258,482.80
Deduct fixed charges, bond interest, taxes, sinking fund, etc.	686,890.64	711,662.14
Income above fixed charges	$ 96,877.27	$ 1,546,880.66
Less depreciation	370,629.30	384,309.57
Deficit	$ 273,752.03	
Surplus		$ 1,162,571.09

Earnings of Texas Company during the first half of 1921, after all charges, were close to $11,000,000. Dividends paid in this period total around $8,000,000, leaving a surplus of approximately $3,000,000.

Standard Gas & Electric Company is reported to be plannign a new note issue of about $4,500,000 to refund its 7 per cent convertible notes, due on Nov. 15, 1921.

Lake Placid Club to Be Scene of Gas Convention.

The annual convention of the Empire State Gas & Electric Association will be held October 6 and 7 at the Lake Placid Club, Lake Placid, N. Y.

The plans for the convention are practically complete. There will be business sessions Thursday morning, Thursday afternoon and Friday morning. The business program consists of reports of committees and addresses by the Honorable William A. Prendergast, chairman of the Public Service Commission; H. M. Addinsel, of Harris, Forbes & Co., and Loyal S. Wright, of Manlius, New York.

Mr. Prendergast will discuss the necessity for mutual confidence between the three parties concerned in the public utility problem—namely, the public, the companies and the commission—and ways and means for promoting such confidence.

H. M. Addinsell, of Harris, Forbes & Co., is chairman of the public utility committee of the Investment Bankers' Association. He has been asked to present the subject of "Public Relations as a Factor in the Value of Utility Securities." This is a most important topic, and one in which every company is vitally interested.

Loyal S. Wright enjoys a national reputation as a public speaker and educator. During the past year he has conducted an educational course for the employees of one of the member companies which, in the opinion of the management, has been highly successful. During this work, he has become familiar with utility problems, and his address on "Serving the Public" will deal with the individual employee as the most important factor in the company's public relations.

The reports of committees will warrant considerable discussion, and that will bring out points of interest and of use to all those present.

On Thursday evening there will be a banquet. The Con-Gas Quartet will provide the music. Two films will be shown—"The Spirit of Service" and "Behind the Button"—the first prepared by the American Gas Association and the other by the National Electric Light Association.

On Friday afternoon there will be an inter-committee of golf tournament and other golf matches. Special entertainment will be provided for the ladies and it is hoped there will be a goodly number in attendance. There will be tennis, golf, horseback riding, boating and other amusements for all.

In making arrangements to attend the convention, it would be well worth while to plan to stay over Saturday and Sunday. The early part of October is the most delightful time of the year in the Adirondacks.

Papers Signed in Gas Company Sale

Redlands, Cal.—All papers on the sale of the Citrus Belt Gas Company to the Southern California Gas Company have been signed. The Southern California Company has taken over all the books and the plants and will begin operation of the same. The deal was put through for $365,000.

Colton and San Bernardino will get natural gas at once. The company will rush to completion pipe lines to Redlands and Corona to give these cities natural gas. In the meantime artificial gas will be served.

The sale of the Citrus Belt properties will mark not only the end of the attempt to maintain competing gas companies in the interior section, but also the official end of a half dozen companies that have from time to time been organized in the various cities and whose securities were afterward taken over by the Citrus Belt Company.

Bonds of these several companies amounting to $350,200 are taken over by the Southern California Company on a basis of 80. These will be paid for by the bonds of the Southern California Gas Company at 7 per cent at 97 and due in 1951. In this manner all bonds of the old companies will be entirely retired.

The deal will give the Citrus Belt Gas Company approximately $75,000 in bonds o nthe 97 basis after the

other securities have been retired. Out of this the Citrus Belt Company must meet any outstanding obligations and the balance then goes to the stockholders, the old Home Company getting its portion in proportion to the amount of stock held in the Citrus Belt Company, which is a little more than one-fifth.

By the transfer the Southern California Gas Company acquires the plants and franchises of the Citrus Belt Company in San Bernardino, Colton, Redlands and Corona. Immediate steps will be taken to furnish natural gas to the customers in San Bernardino and Colton, but in Corona and Redlands it will be necessary to operate the artificial plants for some time. For the latter city pipe is already on the ground for a line from Loma Linda to Redlands to furnish that city with natural gas.

Increases Gas Rate

The Addison Gas & Power Company, which supplies natural gas to Addison (N. Y.) consumers, gives notice, it has applied to the Public Service Commission for permission to increase its rate to 76 cents a thousand feet.

The Potter Gas Company, which supplies its gas at wholesale, has increased the rate from 40 to 48 cents a thousand feet.

Refuses to Nominate Commissioners

Augusta, Me.—For the fourth time the executive council refused to confirm the nomination of Hon. Howard Davies of Yarmouth as chairman of the Public Utilities Commission. Governor Baxter had no comment to make regarding the action of the council or as to what his further course would be. Members of the executive council took the same position of silence which has been theirs since the first time they refused to confirm the appointment. The Governor and council also voted to lay on the table until the next meeting the nomination of Lyman H. Nelson, of Portland, as a member of the State Highway Commission.

Installing New Boilers

Cambridge, Mass. — Cambridge Gas Light Company, Third Street, will make alterations in boiler house and instal two 350 h.p. boilers. Cost $60,000. New England Structural Company and Babcock & Wilcox Boiler Company, builders.

Gasmen Hold Picnic

Oil City, Pa.—Business was practically suspended in the offices and fields of the United Natural Gas Company and Mars Company in thirteen counties of northwestern Pennsylvania last Saturday afternoon to enable the employees of these companies to enjoy their third annual outing at Monarch Park.

It was estimated that fully 2,500 were in attendance and more than 500 automobiles were parked within the park limits. Weather conditions were excellent and aided in making the affair the most successful of any held.

Music for the outing was furnished by the National Transit Band during the basket picnic, which was the feature of the day, in the grove. As the program of field games was long, the committee ran off some of the preliminary events before dinner in order to finish in time for the dancing. The interesting feature of the events was the 100-yard dash, the winner of which was to receive a trophy cup, presented by J. F. Mason, former superintendent of distribution of the United Natural Gas Company. It was won by C. I. Catlin, of Mars, who will retain it until the next outing, when it will be raced for again, and if the present winner wins it again it will become his permanently.

All of those taking part in the sports were heartily applauded by the large audience who demanded encores from each, which was responded to.

Three-Ounce Minimum Gas Pressure Is Sought

Word from Oklahoma City is that Order No. 1028 of the Corporation Commission of Oklahoma requires a minimum gas pressure of four ounces. The Tri-City Gas Company, of Chelser, the Biggs Gas Company, of Biggs, and the Nowata Gas Company, have applied for a modification of the order to three ounces minimum pressure.

The gas companies claim that the consumers will use gas more economically with a three-ounce pressure than with a four-ounce pressure, that the leakage from pipes with a three-ounce pressure will be much less than with the four-ounce, and that the present four-ounce standard means a loss to both the consumer and the companies.

Sixth Annual Picnic

The Peoples Natural Gas Company and the Hope Natural Gas Company, of Pittsburgh, held their sixth annual picnic at Idlewild Park, Pa. The features included a hotly contested baseball game between the Peoples and Hope players, which waswon by the Peoples Company. Following the game, races and various contests were conducted, the prizes totaling over $150.

In a speech by M. H. Henning, superintendent of the Peoples Natural Gas Company, David W. Richart was congratulated upon his successful completion of thirty-five years of service with the company. Mr. Richart is construction foreman for the company.

Looks for Rate Reduction

Brockton, Mass.—Mayor Roger Keity and City Solicitor Winfield M. Wilbar, who will attend the hearing at the State House, September 15, before the Department of Public Utilities on the question of gas rates in Brockton have practically been assured by gas company officials that this city will receive a reduction in rates. The present gas rates were established November 1 and have not been changed since. The mayor and city solicitor have conferred with Manager Priest of the Brockton Gas Light Company and impressed upon him the necessity of a reduction. The city will present a strong case before the commission and the fact that the gas company has succeeded in securing a reduction.

Large Gas Engines

There are four large gas engines being built in Milwaukee, Wis., for the South Chicago works of the Illinois Steel Company. The engines weigh 1,000 lb. each and will be operated on waste gases from the blast furnaces and it is said that by using the waste gases directly in the cylinders of the gas engines, twice the amount of power will be produced as it would be possible to produce by burning the gas under boilers, to generate steam to run steam turbines or steam engines.

The engines are of the twin-tandem type, with four double-acting cylinders each, and having a maximum rating of 500 B.h.p. at 83½ r.p.m., fitted with generators of 3,600 kw. capacity.

Utilities Combine

Eight public service corporations in Indiana are being consolidated into the Indiana Electric Corporation. The articles of incorporation have been filed and the Public Service Commission has been petitioned to consolidate with the Merchants Heat & Light Company, of Indianapolis, the other seven utilities. The property of the seven is said to be worth $18,250,000. The companies serve a large number of cities and towns in fourteen counties of the State with a population of about 900,000.

John W. McCardle, chairman of the Public Service Commission, says "I hope the project may go through, for it will be a great thing for Indiana. It is a step forward on public utility circles and will serve thousands of farmers, taking to them all the advantages of those in the city who have access to electric current." The Merchants Heat & Light Company is back of the movement. Joseph H. Brewer, president of the American Public Utilities, at Grand Rapids, Mich., took over the Merchants Heat & Light Company in 1914.

Gas Well Brought in

An enormous gas well, now flowing at the rate of from 2,000,000 to 5,000,000 cu. ft. per day, has been struck near Sagamore, Pa. It is understood that the gas will be sold to the Philadelphia Company. The men interested in the well, including General Manager Kessler of the B. & S. Coal Company, W. I. Hay, formerly a hotel owner of Sagamore, A. R. McHenry, manager of the B. & S. Company store, and L. Prothero, of Indiana, Pa., bought a rigging at the time of the McKeesport strike but were unable to meet with success in that field and moved the rig to Indiana County. The company was reorganized a few months ago and drilling started near Sagamore on the A. F. Rairgh farm, the first well proving to be a duster. The second well penetrated the sand at 2,925 ft. and the largest well ever struck in that part of the country is now giving the enormous flow named.

THE CENTRAL UNION TRUST COMPANY has been appointed trustee of the recently authorized unlimited issue of first refunding mortgage gold bonds of the New York & Richmond Gas Company.

Recovery of Gasoline from Natural Gas

The demand for gasoline has increased so rapidly that the supply from the distillation of petroleum is insufficient, and the recovery of gasoline from naturel gas has become a big factor in the future supply. The methods in use to obtain the gasoline from the natural gas are the absorption method and the compression method. The former method is used for the dry gas and the latter for the wet gas which occurs with oil. The taking of the gasoline from the natural gas does not harm the gas, but, in fact, actually improves the gas for all uses to which the distributing companies put it, as the water is removed from the gas as well as the gasoline and the water has always proved harmful in that it disintegrates the rubber gaskets and causes leaks in the lines. It is really a conservation operation. The U. S. Geological Survey gives the following production figures for the year 1919:

	Gallons
Gasoline produced from petroleum	3,833,672,295
Gasoline recovered from natural gas:	
By absorption method.	90,377,439
By compression method	261,157,587
Total gasoline produced	4,185,207,321
Average gasoline yield per thousand cubic feet treated	0.74

Gas Supply in Canada Diminishing

Depletion of the natural gas supply is occurring in Canada as well as in the United States, according to official figures which give the following comparisons:

Natural gas production for the Dominion of Canada in 1920 amounted to 16,961,284,000 cu. ft., which wa sa decrease from 1919 of 2,976,485,000 cu. ft., or 14.9 per cent decrease. The declines are most marked in the Ontario and the Bow Island fields. The figures given cover the New Brunswick, Alberta, Ontario and Bow Island fields.

House Heating Coke Tests by U. S. Bureau of Mines

The tests by two Bureau of Mines engineers, James Neil and John Blizard, to determine whther coke breeze mixed with bituminous coal in combination would or would not be a good fuel for house heating furnaces should be put to good use by coke salesmen. A report of the tests is available and may be procured by those interested.

The summary of the report states that the steaming value of a mixture of equal portions of bituminous coal and coke breeze was from 70 to 80 per cent of that of anthracite coal, Pittsburgh lump coal or screened coke, having heating values of 11,500 B.t.u. for the anthracite and the coke. The calorific value of the breeze was 9,700 B.t.u. and of the mixture about the same as the anthracite coal, 11,500 B.t.u. The bituminous coal was about 13,800 B.t.u.

Thermal efficiencies were determined as follows:

	Per Cent
Mixed coal and breeze	57 to 64
Anthracite coal	74 to 77
Bituminous coal	64
Coke	74 to 79

This shows the real value of coke as a fuel for house heating, to be used either as a screened coke or breeze coal mixture.

W. S. Guitteau Leaves Stacey Manufacturing Company

The Stacey Manufacturing Company, Cincinnati, Ohio, announces that W. S. Gitteau, who for several years was associated with the Stacey Manufacturing Company, of Cincinnati, has recently severed his connection with that company. Communications addressed to the Stacey Manufacturing Company, either at their Cincinnati or New York address, will receive the same prompt and careful attention as in the past.

New Book Published

A very interesting and instructive book on practical field methods, written by C A. Warner, ex-field geologist for the Empire Gas & Fuel Company, will be of value to all natural gasmen. The book, called "A Book of Practical Field Methods," is said to have done away with much of the uncertainty of field mapping.

Personal Notes

Hawaii Mourns Alonzo Gartley

Alonzo Gartley, a prominent engineer, died April 24, 1921, following an operation in the Queen's Hospital in Honolulu. Such was the general feeling that on the day of his funeral the Bank of Hawaii, the Bank of Bishop & Co., the Forst National Bank and the Waterhouse Trust Company closed at noon. Many of the largest business houses closed for the day, and numerous firms in the city flew flags at half-mast.

He not only conducted a wide engineering program in the Hawaiian Islands, becoming chairman of the Honolulu Engineering Association in 1904, but his name has been particularly associated with the credit for establishing the floral parade formerly held at carnival time on Washington's birthday.

He was an enthusiastic amateur photographer and many of his pictures depicting Hawaiian csenery, life and portraits of the Hawaiian race types have become classics and are found in many parts of the world. His name has also been associated with the development of new varieties of horticulture.

He was born Oct. 14, 1869, at Cedar Rapids, Iowa, entered the U. S. Naval Academy at the age of seventeen, and graduated with the class of 1890.

He was honorably discharged from the naval service June 30, 1892, and took up his residence in Philadelphia, where he became attached to the engineering corps of the United Gas Improvement Company.

He re-entered the naval service at the time of the Spanish-American War as a lieutenant. When the war was over he returned to the United Gas Improvement Company as executive clerk in the general superintendent's department.

In 1900 he moved to Honolulu and became manager of the Hawaiian Electric Company, holding the position until 1910, when he became consulting engineer for C. Brewer & Co. and later vice-president, manager and director. In 1916 he became president of Catton, Weill & Co.

SAMUEL U. BROWN, who has been manager of the New Bern (N. C.) Gas & Fuel Company and engineer of the Goldsboro Gas & Fuel Company, will leave shortly for Florence, S. C., to become vice-president and manager of the Florence Gas Company. The latter company will be reorganized, and improvements and extensions will be made to the entire property.

F. J. ZINKE has been appointed general manager of the Hoffman Heater Company, Lorain, Ohio, to succeed T. G. Arrowsmith, who has returned to the Pacific Coast to engage in other lines.

Mr. Zinke, it will be remembered, has long been connected with the water heater industry, receiving his early training with the Ruud Manufacturing Company, at Pittsburgh, and subsequently with the Beler Water Heater Company. He has been connected with the Hoffman Heater Company for a considerable period of time as assistant general manager, and purchasing agent.

F. J. Zinke

R. W. Johnston, as sales manager, will be assisted by O. P. Simler, whose operations in the water heater field are well known. Mr. Simler took up his duties August 1 and is now busy assisting in numerous revisions of the field activities.

W. S. GUITTEAU, for many years general manager of the Stacy Manufacturing Company, of Cincinnati, has resigned. His future plans are not yet settled.

HARRY E. WHEELER, formerly with the Massachusetts Gas Companies, at Boston, Mass., has been appointed comptroller of the American Agricultural Chemistry Company, with offices at New York.

Commander Boone Associated with Wholesale Coal House

Pattison & Bowns, Inc., of 25 Broadway, New York City, one of the largest and best known wholesale coal houses in the East, are pleased to announce that Commander Charles Boone, U. S. N. R. F., will be associated with their company on and after Sept. 1, 1921. Commander Boone will have charge of coal sales and service to gas and power companies. He has had a long and active experience in charge of the operation of large gas manufacturing plants in New York City and Brooklyn, having served as superintendent of the New Amsterdam Gas Company, Webster Avenue and East River, Long Island City, from 1906 to 1910, and as engineer in charge of the Metropolitan Works of the Brooklyn Union Gas Company from 1912 to 1917, and through his intimate and first-hand knowledge of the coal requirements of gas and power plants, helpful service to his many friends in that field can be assured.

Commander Boone graduated from the U. S. Naval Academy in 1898 and served with merit in the Spanish-American War, the Philippine campaign and the Boxer uprising in China in 1900.

During the late war he was assigned to the post of district supervisor of the Naval Overseas Transportation Service, Third Naval District, with headquarters at 45 Broadway. In this work he was in direct command of the large fleet of cargo transports manned by the U. S. Navy and utilized for the transportation of supplies and equipment to our army and navy overseas.

Upon being released from active duty in 1917 Commander Boone became associated with Archibald McNeil & Sons Company, Inc., of New York, where he had charge of their export business.

ROBERT A. JAMESON, manager of the Marlboro Hudson Gas Company, has passed the examination of the Massachusetts bar, according to a notice he received. Mr. Jameson is a graduate of Tufts College, class of 1913, and the Suffolk Law School. He became power-engineer of the Marlboro Electric Company and the Marlboro-Hudson Gas Company shortly after his graduation. In 1918 he became manager of the Marlboro Electric Company, Marlboro-Hud-

son Company, and the Westboro Gas & Electric Company. While doing a large amount for these companies he has been studying law. He belongs to the National Electric Light Association, the American Gas Association and the Power Engineer's Club.

M. R. MURPHY, manager of the Oklahoma division of the Arkansas Natural Gas Company, is spending a two months' leave of absence in Pennsylvania.

STEELE SELLERS has been succeeded by H. A. Keyes, formerly with Commonwealth Edison Company in Chicago, as general manager of the Equitable Sales Company, of Pittsburgh, Pa.

H. L. GRIGSBY is in charge of the Wellsville Gas Company's office at Wellsville, Va., taking care of the duties of M. E. Gauck, the local manager, who has been ill for some time and is not improving in health very rapidly.

F. E. WERTHEIM, mechanical engineer for the Liquid Carbolic Company, of Chicago, Ill., has resigned his position with that company to enter the service of the Peoples Gas Light & Coke Company.

C. S. BUTCHER, who for the past sixteen years has been with the Semet-Solvay Company, has joined the St. Louis Coke & Chemical Company, at St. Louis, Mo.

GEORGE K. ELLIOTT, chief chemist and metallurgist of the Lukenheim Company, Cincinnati, Ohio, has been selected to write this year' exchange paper between the American Foundrymen's Association and the British Association. An arrangement recently made between the two associations calls for one original paper to be exchanged each year, Mr. Elliott's paper being the first of the American Association's.

New Gas Line Work Starts

Blackwell, Okla. — Twenty-one cars of 10-in. line pipe on the siding at Nardin and six cars at Deer Creek to lay a gas line from the Deer Creek field to the Empire's line in the Blackwell field, a distance of nineteen miles, are being strung by a contractor from Hominy. This pipe is being furnished by the Empire Gas & Fuel Company, to be laid and taken over by the Cozart Gas Company.

Better Service for South Manchester

South Manchester, Conn.—This town is to have better gas service as soon as the monster tank now in course of construction and capable of holding 200,000 cu. ft. of gas is finished. Early in July the concrete foundations were begun and men from the Stacy Gas Construction Company, of Cincinnati, Ohio, started this week to erect the steel frame which will house the giant holder.

The daily gas consumption for this entire town is 100,000 cu. ft. The erection of the new tank means that there will at all times be enough gas to tide the town over should anything go wrong in Hartford. The tank will be filled at night when the consumption is low. The high-pressure system which is now in use will be done away with, assuring the users of a steady, even flow from the holder pressure.

According to President McArthur of the gas company, over five miles of new lines have been installed here this summer and the company plans to lay the same amount next year. President McArthur also stated that the service would be better as soon as the tank was finished. He was of the opinion that the tank would be ready in about sixty days.

Huge Gas Well Brought In

In the Ferris field of Carbon County, Wyo., the Producers & Refiners Corporation brought in a gasser estimated at 40,000,000 cu. ft or better, during the week of August 16 to 23.

No accurate gauge of the well could be taken as the measuring instrument at hand with a capacity of 21,000,000 registration was inadequate.

She is one of the largest wells in that section, the pay sand being struck at 1,874 ft.

The gas well is known as No. 9, on section 30-26-86.

Utility Bonds

United Fuel Gas Company 7½ per cent secured gold bonds, authorized $3,000,000, issued $2,000,000, in denominations of $500 and $1,000, are a direct obligation of the company and secured by $3,000,000 of company's first mortgage 6s. The properties securing the latter are said to have a book value in excess of $69,000,000, against a total funded debt of $12,447,000. These bonds have just been put on the market at 98¼ and interest, to yield 7.75 per cent. The company supplies gas for lighting, heating and fuel purposes in over fifty municipalities in West Virginia, Ohio and Kentucky.

Bond, Goodwin & Tucker, Inc., report a strong demand for their recent offering of $3,500,000 Los Angeles Gas & Electric series "B" 7 per cent bonds, due 1931. These bonds, which were offered at 97½, have all been sold and inquiries are received every day for additional bonds. The bonds now are 98 bid and 98½ asked, an advance of 1 point over the original offering price.

Gas Contract Remains in Effect

Oklahoma City, Okla.—In an order made by the Supreme Court the Oklahoma Gas & Electric Company, of Oklahoma City, was allowed to make a supersedeas bond in the appeal by that company from an order of the corporation commission allowing the Oklahoma Natural Gas Company a gate rate on its supply of gas to the local distributing company. The court also set the appeal down for oral argument on Oct. 10.

The effect of the supersedeas bond is to continue in effect the old contract between the two companies as to the manner of distribution of the proceeds from the sale of gas here for consumption. Previous to the gate rate order the Oklahoma Natural was receiving a per cent of the receipts. The gate rate gave the company 25 cents per 1,000 cu. ft. flat.

Asks Higher Rate

Mineral Wells, Tex.—The two gas companies which hold franchises in Mineral Wells have petitioned the city commission asking for an increase in gas rates. The attorneys for the two companies have presented data showing that they are losing money at the present rates and giving comparative prices in other Texas cities using natural gas. The maximum rate in Mineral Wells at this time is 35 cents. The two companies are asking for a maximum rate of 60 cents.

CITIZENS GAS COMPANY, Indianapolis, issued $2,000,000 preferred stock.

Gas Company Offers Prizes for Slogan

Chicago, Ill.—The Peoples Gas Light & Coke Company is offering money prizes to anyone who will invent a slogan or short phrase which will best express all the advantages to be obtained by the use of gas in shops and factories. They have been using the word "fuel" in this connection; and, of course, if you stop to think about it, the word "fuel" contains no hint of the full service to be obtained from gas.

For instance, take the "flexibility" of gas: A tiny flame for a jeweler's torch, or a roaring furnace capable of producing several thousand degrees Fahrenheit can both be had from the same line of pipe. Heats in furnaces and forges can be raised and lowered instantly. One forge or furnace can be operated independently of the rest of the factory and no waste or extra expense is incurred. Gas can be piped to attics, outbuildings and places that could not otherwise be utilized for "heat" operations.

A gas jet at tremendously high temperature can be trained directly on a given surface point, and when used in such a manner it partakes of the nature of a tool.

In many manufacturing processes it is necessary to maintain low temperatures. Low temperatures are particularly hard to control. Gas will maintain any temperature high or low.

The gas flame contains no chemical constituents which injuriously affect the metal with which it comes in contact. It is also clean. In some factories a clean atmosphere is absolutely necessary, and cleanliness is an advantage in any factory.

Gas presents no such problems as vex the users of oil or solid fuels: transportation delays, storage, weather troubles, insurance. Its full efficiency is directly in the grip of the operator. A turn of the wrist sets it to work, or stops it. No job is too big for gas. The International Harvester Company and the American Car Foundry Company each consume fifteen million cubic feet in a normal month. These two companies alone use pretty nearly as much gas per month as the whole town of Waukegan.

If you will consider these facts, and others which may occur to you in connection with shop and factory use of gas, and condense your findings into a suitable slogan you may win one of the following prizes: First prize, $100; second, $50; third, $25; fourth, $10; and $2 for the twenty-five "next best." Competition will close Oct. 15. Address it to "Prize Slogan Committee," the Peoples Gas Light & Coke Company.

"Sorry, We Have None"

Just suppose that when you want gas the gasman said "Sorry, but we're entirely out of it to-day. We expect to have some next week."

Gas is on tap for your use at any time, day or night. At the mere turn of a valve it is ready when you want it, where you want it. Because the gasman maintains uninterrupted service. Consider what this means to him.

When coal companies advance their prices, can the gasman say "your coal is too high, we won't buy until it comes down?" When the oil man raises his price because he can get so much more for his oil by refining it for the automobile, can the gasman tell him that he'll stop making gas until prices come down?

And how about labor, the interest on money, and the other essential factors? Can the gasman wait until they cost less? These things he must have. To get them he must pay the price. That's why he is forced to ask more for his gas. To him it is a matter of being able to continue in business. To the average consumer, it means a slight additional cost per month.—*Ohio Committee on Public Utility Information.*

Named as Gas Company Director

New Bedford, Mass.—At the annual meeting of the stockholders of the New Bedford Gas & Edison Light Company, John Duff was added as a new member of the directors. The following directors were re-elected: Lot B. Bates, Francis E. Frothingham, Frank H. Gifford, Thomas F. Glennon, Henry M. Knowles, Parkman M. Lund, John S. Perry, William H. Pitman, Oliver Prescott, Charles R. Price and Frederic Taber. Charles R. Price was also re-elected treasurer and clerk.

OKLAHOMA GAS & ELECTRIC COMPANY, quarterly, 1¾ per cent on preferred, payable Sept. 15.

$1,000,000 Gas Stock Issue

In a hearing recently held before the Public Service Commission of Indiana the Citizens Gas Company, of Indianapolis, let it be known that it intends to dispose of its proposed $1,000,000 issue of capital stock at 98 cents on the dollar. No opposition to the proposed issuance of stock was advanced at the hearing. Samuel Ashby, corporation counsel of Indianapolis, asked the commission to have its auditors verify amounts the company declared it has extended for improvements.

The proposed stock issue, which was announced some time ago through the JOURNAL's columns, is for the purpose of taking up $500,000 in bonds now maturing and to finance improvements made by the company in the years 1920 and 1921. Newspaper reports of the hearing before the commission said it was understood the petition for the stock issuance would be granted.

Gas Company Obtains Charter

New Orleans, La.—The Arkansas, Louisiana & Texas Development Company, a $6,000,000 concern, has been incorporated in Delaware with plans to furnish natural gas to cities tributary to the Monroe oil and gas field. J. S. Cullinan, of Houston, is one of the incorporators, the others being John Walsh, of Washington, former general counsel of the Federal Trade Commission, and E. A. Frost, lumberman of Shreveport.

The purpose of the company is to construct a gas pipe line from the Monroe field, and while plans are not fully matured it is likely the service will be extended to such places as New Orleans, Houston, St. Louis, Little Rock and Beaumont. The report of the United States Bureau of Mines estimates the amount of recoverable natural gas in the Monroe field to be in excess of 4,000,000 ft., and it is thought that the field contains more natural gas than any other single area yet discovered.

Dividend Notice

Wilmington, Del.—The Wilmington Gas Company has declared a semi-annual dividend of 3 per cent on preferred, payable September 1 to stockholders of record August 20.

Pacific G. & E. Saves by Cutting Expenses

San Francisco, Cal.—Earnings of the Pacific Gas & Electric Company for July and the seven months ended July 31, 1921, compare very favorably with those of the corresponding periods of last year. While July gross of $2,987,341 was $37,233 less than in July, 1920, this was more than offset by the big reduction in operating expenses, which amounted to only $1,912,646, against $2,105,866 for the same month last year, a decrease of $193,220. After providing for all charges there remained a surplus of $364,010, against $289,609 in July, 1920.

According to Vice-President A. F. Hockenbamer, the decrease in gross business for July was due mainly to a smaller seasonable demand for electric energy for irrigation purposes. He predicts that future operating expenses will show a still further decline because of lower commodity prices, the bringing in of new hydroelectric plants and a better water supply. Additional hydroelectric energy amounting to 36,800 h.p. will be available, he says, within the next thirty days.

The company's Pit River plant No. 1, designed to deliver 93,000 h.p. at minimum steam flow, and without storage, is expected to be completed by the middle of next summer.

The company practically earned the common dividend requirements for the year during the first seven months. It had on hand on July 31, 1921, over $6,670,000 in cash, besides other quick assets of a substantial amount, while its current liabilities include only items due to the current operations. The number of customers was increased during the first seven months of this year by 13,011, bringing the total permanently connected to 582,370.

Explaining Oil Shale

What should prove of much interest to gasmen is Bulletin No. 1 of the State of Colorado co-operative oil shale investigation entitled "Short Papers from the Co-operative Oil Shale Laboratory," by Martin J. Gavin and Leslie H. Sharp, a copy of which can be obtained from the United States Bureau of Mines, Boulder, Col., or from the State oil inspector, Denver. Perhaps a few words will explain the value of this bulletin.

There are six short but right-to-the-point reports touching upon the following: The fuel value of oil shale and oil shale products are discussed in the first paper; the nature and composition of shale gas is presented in the second; the third gives production tables and curves for shale oil as obtained from the horizontal retort used in the co-operative laboratory at Boulder, Col.; the analytical distillation of shale oils is taken up in the fourth report; the fifth gives data on thermal calculations for the retorting of oil shales, and the sixth is a tabulation of factors and formulaes which have been found of value in the shale laboratory of the Bureau of Mines.

Cortland to Have New Water Gas Plant

The Gas Machinery Company, Cleveland, Ohio, has been awarded contract by the New York State Gas & Electric Corporation, Cortland, N. Y., to build a complete water gas plant at their works, consisting generally of the following machinery and equipment: One 6-ft. double superheater carbureted water gas apparaus, complete with turbo blower, air and steam meters, oil pump, pyrometer, generator charging apparatus and charging floor; one 5-ft. diameter by 19-ft. high condenser and connections, one No. 6 exhauster, with vertical self-oiling engine, flexible coupling and connections; one water gas tar washer and connections; gas connections complete from water gas apparatus to relief holder, condenser, exhauster, tar washer, and to inlet of old purifiers; tar separator and liquor circulating system, pumps and piping; oil storage tanks, pumps and piping; steam boiler plant, consisting of 100-h.p. horizontal tubular boiler, complete with superheater and auxiliary equipment; one station meter and connections for water gas; buildings, foundations and other parts necessary to complete the above plant.

The coal gas plant now at the works at Cortland, N. Y., is in first-class condition, and with the increased water gas capacity the gas company will be in position to take care of the increased demand on its product and continue the high class of service that has been furnished in the past.

Ogdensburg Gas Company, Ogdensburg, N. Y.; $100,000 to $150,000.

Ohio Natural Gas Supply Failing

Cleveland, Ohio.—Ohio will soon be faced with the problem of providing for a future gas supply. Natural gas companies drawing from a diminishing source now dominate the situation. They supply 781,000 customers in comparison to 9,000 purchasers of the artificial product. In 1920 they sold 145,290,000,000 cu. ft. of gas, against 527,000,000 by the artificial gas distributors. They had 5,000 employees, against 115 for the produced-gas people.

The natural gas difficulty is how to take care of an increasing demand with a decreasing supply. In addition to exhaustion of natural gas wells, Ohio is perplexed by West Virginia legislation which would prohibit exportation of the vapor from that State. Constitutionality of this law is to be determined by the United States Supreme Court. Ohio produced only 94 billion of the 145 billion cubic feet used in 1920. West Virginia provides Cleveland with nearly 75 per cent of its supply.

Natural gas companies propose the sliding rate scale as an expedient. An advancing charge makes impossible continued use of natural gas by industrial consumers and conserves the supply for domestic lighting and cooking. It discourages heating of homes by gas furnaces. This plan has been extensively adopted over the State. A committee has toured the production fields and reported there was no danger of a shortage. The Chamber of Commerce has declared increases sufficient to conserve the supply essential.

By ordinance, the Cleveland council has directed that the present flat rate of 35 cents a thousand be continued for ten years. M. B. Daly, president of the East Ohio Company, says the company cannot guarantee the supply for that period. He advocates a rate that would eliminate industrial consumption and reimburse the company for this revenue loss through increased domestic charges. The company proposes a rate of 50 to 75 cents, with $1.50 minimum monthly charge.

Even if accepted, the city must soon face the necessity of providing for artificial gas production either municipally or by encouraging capital.